The Dissertation Committee for Ming-Ching Liang Certifies that this is the approved version of the following dissertation:

Health Information Sharing Behaviors on Facebook among Emerging Adults

Committee:

Lee Ann Kahlor, Supervisor

Matthew Eastin

Alexandra Loukas

Michael Mackert

Patricia Stout

Health Information Sharing Behaviors on Facebook among Emerging Adults

by

Ming-Ching Liang, B.S., M.A.

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Dedication

To my parents and brothers for being in my life.

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Health Information Sharing Behaviors on Facebook among Emerging Adults

Ming-Ching Liang, Ph.D.

The University of Texas at Austin, 2015

Supervisor: Lee Ann Kahlor

While more and more practitioners have started to use social networking sites (SNSs) as a way to communicate with young audiences about health topics, not much is known about why emerging adults share health information on those platforms. Drawing from the theory of planned behavior, the situational theory of problem solving, and the uses and gratifications approach, this study proposes and tests a model that highlights proactive and reactive information sharing behaviors and the motivational factors that predict these behaviors. In the context of sharing influenza-related information on Facebook, a survey study (N=338) was conducted. The results of structural equation modeling and regression analyses confirmed the applicability of the proposed information sharing model in the current research context. Despite some insignificant relationships, the features of emerging adults were empirically examined, with possibilities and instabilities recognized as potential contributors to information sharing behaviors. In addition, it was observed that the differences between proactive and reactive information sharing behaviors related to the roles of perceived control over the information sharing behavior. Specifically, the perceived norms of information sharing, the need for self-presentation on SNSs, and the sense of virtual community were identified as the more prominent predictors for both proactive and reactive information sharing behaviors. The

framework and findings of this study present future opportunities for researchers who work on health information behaviors, emerging adulthood, and digital health communication. The implications in health intervention development are also discussed.

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Chapter 1: Introduction

Social media, featuring user-generated content and Internet publishing technologies (Terry, 2009), have become a popular tool for use by health communication practitioners. Due to the ease of information exchange and the media's interactive nature, numerous government agencies, organizations, and educators as well as marketers of health-related products and services are using social media to disseminate information, communicate branded messages, and enhance public engagement (Neiger et al., 2012). Social media can provide a broad array of opportunities for interaction, message tailoring, information accessibility, social support, public health surveillance, and influence on policy making (Moorhead et al., 2013). Recent studies report that the majority of state health departments have adopted Twitter and Facebook for information distribution (Harris, Mueller, & Snider, 2013; Thackeray, Neiger, Smith, & Van Wagenen, 2012).

As a subcategory of social media, social networking sites (SNSs) have attracted considerable attention from health scholars and practitioners. The general public has recognized SNSs as a health information source (Vance, Howe, & Dellavalle, 2009) and about 30% of the population use SNSs for health purposes (Thackeray, Crookston, & West, 2013). Additionally, social networking sites serve as a platform for interventions aiming for health behavior change, according to a meta-analysis of results of program effectiveness (Laranjo et al., 2014). Specifically, a recent systematic review of research indicates that about 60% of the sampled studies used SNSs to communicate with hard-to-reach populations, including young audiences and groups at high risk for substance abuse (Capurro et al., 2014). For example, a SNS program implemented in California seeks to build connections between youth and sexual health services (Ralph, Berglas, Schwartz, & Brindis, 2011). In addition, SNSs have been documented to help with recruitment,

intervention, and evaluation, especially when the target audiences include adolescents and young adults (Park & Calamaro, 2013).

Media use is an integral part of life for young adults of college age. According to the 2013 College Explorer Survey, college students spent an average of 14.4 hours daily using various media (Crux Research, 2013). Social media, especially popular among the younger population, enable the creation and exchange of content among users (Kaplan & Haenlein, 2010). For example, recent data showed that 89% of Internet users between the ages of 18 and 30 use Facebook and 35% use Twitter (Pew Research Internet Project, 2014) with about half the college respondents reporting the multitasking of media use (Crux Research, 2013). Media consumption patterns present both opportunities and challenges for communicators who try to reach college students. For example, while college students' large amount of media consumption provides more contact points for communicators, college students' multitasking of media use implies an intense competition for their attention.

Moreover, college students are believed to be difficult to persuade, especially when the persuasion presents a potential threat to their freedom (J. W. Brehm, 1966; S. S. Brehm & Brehm, 1981). Negative emotions and cognitions frequently arise especially when the persuasion attempt poses threats to college students' newly gained autonomy thereby leading to psychological reactance (Arnett, 2004; S. S. Brehm & Brehm, 1981). This psychological reactance to persuasion has been cited as one of the reasons that health communication efforts that target college students are often ineffective and result in students moving in an opposite direction (Richards & Banas, 2014).

An alternative way to respond to college students' media use patterns and psychological reactance to health persuasion is to employ electronic word-of-mouth type communication. The effects of word-of-mouth (WOM) are well-documented (e.g.,

Chevalier & Mayzlin, 2006; Herr, Kardes, & Kim, 1991). Electronic WOM (eWOM) transmitted via social media is found to be especially powerful (Jansen, Zhang, Sobel, & Chowdury, 2009a, 2009b; Kozinets, De Valck, Wojnicki, & Wilner, 2010) due to its immediacy, capacity for mass reach, accessibility, credibility, and utilization of existing social networks (Hennig-Thurau, Gwinner, Walsh, & Gremler, 2004). Familiarity with senders builds credibility based on existing relationships (Lee & Lee, 2009) that can contribute to people's attention allocation (Kahneman, 1973) thus making eWOM an especially effective tool to address college students' multitasking media use as well as their reactance to communication. Sharing of information and photographs with others is among the most popular activities on Facebook (A. Smith, 2014) and the primary reason that college students use social media (Alhabash & McAlister, 2014). For health communicators interested in reaching and engaging young people, it is important to understand under what conditions young people share health information through social media. Therefore, the current study explores the overarching research topic: Why do emerging adults proactively and reactively share health-related information on social networking sites?

Despite the potential usefulness of voluntary information dissemination and the rich literature on information sharing in areas of marketing and organizational communication, little research has been directed toward message transmission behaviors and innovative promotion techniques in health disciplines (Freeman & Chapman, 2008). The need for research in voluntary health information dissemination inspires the first aim of this study, which is to integrate literature on information behaviors across disciplines and to construct a theoretical framework that is specifically applicable to health fields.

The second aim of this study is to test how characteristics of emerging adulthood relate to health communication, in general. Emerging adulthood refers to the transitional

phase of development between adolescence and adulthood, roughly from 18 to 25 years of age, and applies mostly to young people who attend college and can afford the prolonged transition (Arnett, 2000). As mentioned above, the sharing information on social media is a common practice among college students. However, very few studies approach this topic from a developmental viewpoint, taking into account that college students are typically in emerging adulthood (Arnett, 2000, 2004) and may have certain attributes and needs that encourage their use of social media to transmit health information (J. D. Brown, 2006; Coyne, Padilla-Walker, & Howard, 2013). Although some studies have investigated emerging adults' media use (e.g., Michikyan, Dennis, & Subrahmanyam, in press; Michikyan, Subrahmanyam, & Dennis, 2014), most research has relied upon the theory of emerging adulthood to justify segmentation selection or to qualitatively theorize media use. Only a handful of studies have examined emerging adulthood quantitatively (Lisha et al., 2012). To the best of my knowledge, no research has quantitatively tested the connection between the features of emerging adulthood and emerging adults' communication behaviors. This study will be one of the initial attempts to address that issue.

The third and the fourth goals of this research relate to literature integration. The third goal is to differentiate and compare proactive and reactive information sharing behaviors. Previous literature focuses on only one of the information behaviors or does not clearly differentiate among various information behaviors. Especially, proactive information sharing has received scant scholarly attention (Chu & Kim, 2011). Based on the definition adopted from the situational theory of problem solving (STOPS) (Kim & Grunig, 2011), this study defines reactive information sharing as transmitting information in response to others' requests, distinguished from proactive information sharing as actively transmitting information without others' requests. In the current study, the

predictors and motivations of these two types of information transmission are compared for the purpose of better understanding the similarities and differences between proactive and reactive information sharing behaviors.

The fourth goal is to profile the motivations that prompt emerging adults to use social networking sites (SNSs) for the purpose of proactively and reactively sharing health-related information. Due to the scarcity of literature on health information sharing, the current study reviews previous research and theories from multiple fields. It is observed that existing studies usually focus on one of the following: motivations for information behavior (e.g., Chu & Kim, 2011), motivations associated with the topic of information (e.g., Kim, Shen, & Morgan, 2011), and motivations associated with the media used to transmit the information (e.g., Alhabash & McAlister, 2014). Some studies have incorporated two of the dimensions of motivation but few have examined all three. Profiling the motivations for use of SNSs for proactive and reactive health information sharing is expected to help identify the range and diversity of individuals' goals. That is the first step in the construction of a comprehensive framework to explain health information behaviors (first study aim).

To fulfill the goals stated above, this study proposes a framework based on theory-driven structural equation modeling. The findings will help connect the missing links in the literature on health information behaviors and provide a more comprehensive perspective of the transmission of health-related information on SNSs. In terms of practical implications, these findings offer insights into innovative approaches for the social marketing of health issues. In particular, health promotion practitioners can employ these insights to design communication efforts that encourage college students to share information on social media in cost-efficient ways that inform as well as engage college students relative to health issues.

Chapter 2: Literature Review

Overall, the current study aims to explore the motivation structures behind emerging adults' decisions to proactively or reactively share health-related information on SNSs. In the context of health communication, this study proposes a framework that incorporates emerging adulthood features, differentiates proactive versus reactive information sharing, and integrates various aspects of motivations for information sharing. Here, information refers to the messages that are considered relevant to a specific problem situation (Kim & Krishna, 2014). This information process involves several elements: emerging adults, psychological process, proactive and reactive information sharing, and social media use. Guided by the theory of planned behavior (TPB) (Ajzen, 1991), uses and gratifications theory (U&G) (Katz, Blumler, & Gurevitch, 1973), and the situational theory of problem solving (STOP) (Kim & Grunig, 2011), the following sections provide a review of existing research on these elements and lead to the development of the hypotheses for the current study.

REACTIVE AND PROACTIVE INFORMATION SHARING

With the onset of the new media era that has shifted the paradigm of audience perspectives from passive to active, scholarly attention across disciplines has focused on deliberate communication behaviors (e.g., information seeking, media selection) (Kim & Krishna, 2014). For example, the situational theory of publics (Grunig & Moss, 1997) theorizes that communication is "a purposive behavior to cope with a problematic life situation" (Kim & Grunig, 2011; p. 71, Kim & Krishna, 2014). Numerous studies have considered information seeking behaviors in different contexts; however, relatively little is known about other aspects of information behaviors (Chu & Kim, 2011): specifically, how people actively and purposively engage in the selection and transmission of

information (Kim, Grunig, & Ni, 2010; Yang, Kahlor, & Griffin, 2014). The information behaviors of interest in this study – proactive and reactive information sharing - are still new research topics in health communication. This part of my research draws from existing literature on similar constructs set forth in marketing/advertising (word-of-mouth, market maven) and organizational communication (knowledge sharing).

In the arena of consumer-centered marketing, scholars as well as practitioners of marketing have started to examine consumers' communication behaviors: how they find information about products and retailers and how they talk with each other about products. Word-of-mouth research relates specifically to informal communication among consumers about products, companies, and distributors (Arndt, 1967; Westbrook, 1987). Because word-of-mouth is considered a credible source of market information among fellow consumers, researchers argue that information passes more readily through consumer skepticism and defenses and is therefore powerful in influencing purchase decisions (Bone, 1995; Chevalier & Mayzlin, 2006; Trusov, Bucklin, & Pauwels, 2009). Due to practical implications for marketing, researchers have explored why consumers pass along market information to others. For example, Dichter (1966) developed a motive typology for information givers that consists of product involvement, self-involvement (sending information gratifies emotional needs), other-involvement (sending information represents a gift/favor to others), and message involvement (sending information because of communication messages instead of the product itself) (Dichter, 1966).

Applying the Metatheoretic Model of Motivation and Personality (3M Model; Mowen, Park, & Zablah, 2007), behavior for sending market information is determined by a hierarchy of traits ranging from elemental traits (e.g., personality), and compound traits (e.g., need for information and need for play) to situational traits (e.g., susceptibility to influence, shopping enjoyment). In the context of pass-along email, social connection

and fun are viewed as the primary motives for sending messages (Phelps, Lewis, Mobilio, Perry, & Raman, 2004). Based on the Fundamental Interpersonal Relations Orientation (FIRO) theory (Schutz, 1966), Ho and Dempsey include as the motivator of forwarding online content the need to belong, individuation, altruism, and personal growth (Ho & Dempsey, 2010). Furthermore, some people are observed to be more knowledgeable about a product category and more willing to share market information and answer questions. These people are regarded as "market mavens" (Feick & Price, 1987; Goodey & East, 2008).

Based on the two-step flow of communication (Lazarsfeld, Berelson, & Gaudet, 1948), another branch of research seeks to identify market mavens and understand why they give market information. Because of their marketplace knowledge and influence, market mavens are often aware of new product information earlier than others but the concept is different from opinion leadership and early adoption for the reason that market mavens tend to have broad knowledge about the marketplace, in general, not just specific products (Feick & Price, 1987). Because marketplace information transmission is useful to others (Atkin, 1972; Dichter, 1966), the transmission of information represents an informal reciprocal arrangement, an "implicit contract in which the information receiver pays for the information" (p. 85) (Feick & Price, 1987). In addition to this social exchange viewpoint, researchers have identified other motivations that differentiate market mavens and drive information giving that include an obligation to share information, pleasure in sharing information, and a desire to help others (Goodey & East, 2008; Price, Feick, & Higie, 1987; Walsh, Gwinner, & Swanson, 2004).

Organizational communication research is yet another area that has given considerable attention to knowledge sharing, especially the fields of team dynamics (Hinds & Weisband, 2003), collaborative tasks (Kolekofski & Heminger, 2003; Steinel,

Utz, & Koning, 2010; Talja, 2002; Talja & Hansen, 2006), and problem solving (Miranda & Saunders, 2003). Based on research in social exchange, knowledge markets, and social capital, Hung at al. (2011) proposed a framework of motivations for knowledge sharing behavior that identifies three extrinsic motivations - economic reward, reputation feedback, and reciprocity - and one intrinsic motivation - altruism. Their findings suggest that reputation feedback influences the number of ideas generated, idea usefulness, and idea creativity, whereas the other three types of motivations predict satisfaction toward the group meeting its goals (Hung, Durcikova, Lai, & Lin, 2011).

Knowledge sharing is considered a deliberate behavior; therefore, many scholars (e.g., Gagné, 2009; Hsu & Lin, 2008) have adopted the theory of planned behavior (TPB) (Ajzen, 1991) or its precursor, the theory of reasoned action (TRA) (Fishbein, 1979). The TPB suggests that a planned behavior is best predicted by the behavioral intention (BI) and that the behavioral intention is determined by three motivational factors: attitude toward the behavior, subjective norms, and perceived behavioral control. In the case of knowledge sharing, the behavior of information sharing is predicted by the sharing intention which, in turn, is predicted by attitude toward knowledge sharing, subjective norms about knowledge sharing, and perceived control over knowledge sharing. Based on TPB and TRA, some studies focus more on the formation of attitude toward knowledge sharing.

For example, beliefs about information, interpersonal relationships, organizations, tasks, expected rewards, expected contributions, and expected associations contribute to attitudes associated with information ownership that predict intentions toward knowledge sharing (Bock & Kim, 2002; Kolekofski & Heminger, 2003). Other studies have more comprehensively examined all the factors proposed by TPB. For instance, Gagné's (2009) Model of Knowledge-Sharing Motivation incorporates factors from the theory of

planned behavior (Ajzen, 1991) and self-determination theory (Deci & Ryan, 2000), suggesting that autonomous motivation, attitude toward knowledge sharing, and knowledge sharing norms contribute to people's intention to share knowledge that, in turn, leads to knowledge sharing behaviors (Gagné, 2009). Another study incorporates both TPB and the technology acceptance model to explain why people use blogs (Hsu & Lin, 2008). Hsu and Lin (2008) identified five knowledge sharing beliefs (altruism, expected reciprocal benefit, reputation, trust, and expected relationships) as the predictors of attitudes toward blog use. Along with social norms and community identification, attitudes toward blog use contribute to the intention to blog.

Although information sharing has been examined in various disciplines, there are several issues in the literature that call for further attention. First, many studies do not differentiate reactive information sharing from proactive information sharing. While knowledge sharing studies clearly define the concept as "providing a helpful answer to a request for information" (p. 63) (Rafaeli & Raban, 2005), research on word-of-mouth communication and market mavens seldom distinguishes proactive versus reactive market information sharing. A noticeable exception is a study by Chu and Kim (2011) who examined information seeking, reactive information sharing, and information passing (proactive information sharing) behaviors on social networking sites. As a result, they proposed a model that specifies the determinants of electronic word-of-mouth behaviors and identified different predictive patterns between proactive and reactive information sharing.

RQ1: Are the predictive patterns different between proactive health information sharing and reactive health information sharing?

Another gap in the literature relates to a focus on motivations for information behaviors that overlooks what types of information are communicated and how. To

address that issue, the present study seeks to incorporate factors regarding determinants of media use along with topic involvement by systematically investigating why people use certain types of media for proactive and reactive information sharing as well as why they share information about certain topics.

USES AND GRATIFICATIONS ON SNSS

Uses and Gratifications (U&G) Theory (Katz, 1959) is a research tradition of media effects (Ruggiero, 2000) that investigates "the social and psychological origins of need which generate expectations of the mass media or other sources, which lead to differential patterns of media exposure, resulting in need gratifications and other consequences" (Katz, Blumler, & Gurevitch, 1973, p. 510). The U&G theory posits that the audience actively selects and uses media in order to fulfill various needs.

Based on psychological, social, and environmental conditions (Katz, Blumler, et al., 1973), needs that are "essential for ongoing psychological growth, integrity, and well-being" (p. 229) determine motivations and direct behaviors (Deci & Ryan, 2000). Gratification refers to the perception of need fulfilment as the result of an action (e.g., media use) (Palmgreen, 1984). Since needs play a critical role in the use and gratification process, many communication scholars strive to systematically research its typology. For example, Katz and colleagues suggested that five categories of human needs can be gratified through media use: cognitive needs (needs for information and knowledge), affective needs (needs for pleasure and emotional experience), integrative needs (needs for credibility, confidence, status, and stability), needs for contact (needs for connecting with people), and needs for escape (needs for weakening links to social roles) (Katz, Haas, & Gurevitch, 1973). People exhibit distinct media use patterns because of differences in the needs they intend to fulfill through media use.

The U&G approach has been widely applied to understand how and why people use certain media, especially the "novel" ones (Huang, 2008). The advancement of telecommunication technology has been identified as a contributor to the reemergence of U&G perspectives (Ruggiero, 2000). The advent of Internet-based communication and its unique nature of interactivity, user control, and asynchroneity inspired a wave of U&G studies on people's adoption of new communication technology (Ruggiero, 2000). Tosun (2012) observed that earlier academic efforts focused on the reasons, processes, and consequences of Internet usage as a whole (e.g., Kaye, 1998; Stafford, Stafford, & Schkade, 2004). Recognizing the complexity and diversity of Internet-based communication technology (C. A. Lin, 2002), researchers then turned their attention to specific communication tools, such as online shopping (Huang, 2008), instant message platforms (Ku, Chu, & Tseng, 2013; Leung, 2001), e-mail (Ku et al., 2013; Phelps et al., 2004), online communities (Sangwan, 2005), and online news (C. Lin, Salwen, & Abdulla, 2005; Nguyen, Ferrier, Western, & McKay, 2005).

More recent U&G studies have centered on why people use social media and how their motivations predict gratifications of social media use (e.g., Ku et al., 2013; Quan-Haase & Young, 2010; Wang, Tchernev, & Solloway, 2012; Whiting & Williams, 2013). Facebook (FB), which is the most popular social networking site (SNS) (Global Web Index, 2014), has received considerable academic attention for exploring users' needs and gratifications (e.g., Hunt, Atkin, & Krishnan, 2012; Sheldon, 2008a, 2008b). One of the research streams has compiled and categorized reasons for FB use. For example, a dual-factor model was proposed to highlight two basic social needs that motivate FB use: the need to belong and the need for self-presentation (Nadkarni & Hofmann, 2012). Joinson (2008) proposed seven motivations for using FB that are categorized as social connection, shared identities, photographs, contents, social investigation, social network

surfing, and status update (Alhabash, Park, Kononova, Chiang, & Wise, 2012). Cheung and colleagues suggest that people choose to use Facebook because of its purposive/instrumental value in offering self-discovery, the ability to maintain interpersonal interconnectivity, social enhancement, and entertainment (Cheung, Chiu, & Lee, 2011).

Other scholars have proposed various typologies of motives for social media and Facebook use by identifying categories of needs that are similar to those on Katz's list: emotional needs, cognitive needs, social needs, and habitual needs (Katz, Haas, et al., 1973; Wang & Tchernev, 2012; Wang et al., 2012). Emotional needs are associated with pleasure and emotional experience (Katz, Haas, et al., 1973), such as entertainment and distraction (Papacharissi & Mendelson, 2011). Cognitive needs relate to information and knowledge, including information seeking and storage (Park, Kee, & Valenzuela, 2009; Shao, 2009). Social needs are the needs to strengthen the connection to others, such as relationship building and maintenance (Joinson, 2008; Sheldon, 2008b; Subrahmanyam, Reich, Waechter, & Espinoza, 2008). Habitual needs include passing the time (Papacharissi & Mendelson, 2011).

Similar to previous arguments that seek to counter Internet U&G studies, some researchers point out that Facebook should be considered a "collection of communication tools" (p. 2323) instead of a single medium (Smock, Ellison, Lampe, & Wohn, 2011). Based on survey data, Smock et al. (2011) identified different underlying motivations for using Facebook as predictors of status updates, comments, wall posts, private messages, chat, and groups. For instance, habitual passing time is a predictor of wall posts but not of other features. While relaxing entertainment is related to sending of comments, social interaction motivation also predicts comments, wall posts, and private messages.

In the present study, the Facebook activities of interest are proactive and reactive information sharing that may be driven by a specific subset of FB usage motivations. By definition (Kim & Grunig, 2011), reactive health information sharing on Facebook may include posting links to health-related news, blogs, and websites in response to people's requests; on the other hand, proactive health information sharing refers to similar behaviors without people's requests. In some cases, the motivations for using Facebook to share health information appear to differ from motivations for more general Facebook use.

IDENTITY AS A MOTIVATION FOR SNS USE

The anonymity and interactivity features of the Internet provide unique opportunities for identity management (Seidman, 2013). Therefore, in addition to the motivations listed in the previous section, U&G studies add identity-related needs to the list of factors that motivate the use of Internet-based media (e.g., James, Wotring, & Forrest, 1995; Pempek, Yermolayeva, & Calvert, 2009; Rubin, 2002). Needs associated with self-identity consist of self-expression/presentation (T. Jung, Youn, & McClung, 2007; Mehdizadeh, 2010; Michikyan et al., in press; Michikyan et al., 2014; Ong et al., 2011; Smock et al., 2011), identity construction (Gentile, Twenge, Freeman, & Campbell, 2012; Subrahmanyam & Greenfield, 2008; Subrahmanyam et al., 2008; Zhao, Grasmuck, & Martin, 2008), and image management (Back et al., 2010; Krämer & Winter, 2008; Siibak, 2009; Urista, Dong, & Day, 2009).

The need for the expression of self is considered an important motivator for social media use. Through photographs, profile information, and wall posting, self-presentational behaviors on Facebook are categorized as general self-disclosure and emotional disclosure (Seidman, 2013). Pempek et al. (2011) cited social interactions and

self-expression among popular reasons that motivate college students to use Facebook. Through media preference – along with content, work, religion, and political ideology – college students express their individual identities (Pempek et al., 2009). In a recent survey study (Alhabash & McAlister, 2014), college student respondents agreed that expressing themselves and showing their personalities were among the reasons for use of Facebook and Twitter. However, when examining self-expression as a driver for different types of SNS usage behaviors, researchers found that self-expression is a negative predictor for Twitter replying and "favoriting" and insignificant in explaining liking, sharing, or commenting on Facebook (Alhabash & McAlister, 2014). This finding resonates with previous notions that the use of different features of Facebook may be related to different underlying motivations (Smock et al., 2011).

Another line of research on self-expression in the use of Facebook investigates various facets of the "self" represented on social networking sites (SNS). Although some scholars have found that personal information on SNS (e.g., profiles and photos) may reflect the "true self" and personality (Back et al., 2010; Tosun, 2012), others have observed that self-expression/representation on SNS is rather strategic (Siibak, 2009; Utz, Tanis, & Vermeulen, 2012). That is, users deliberately choose what personal information is disclosed and in what way information is presented for the purpose of achieving certain goals, including self-enhancement, Internet security, and idealization. A content analysis of SNS profiles indicates that communicating idealized selves is a common practice among college students (Manago, Graham, Greenfield, & Salimkhan, 2008). Similarly, according to a focus group study, many college students use Facebook and MySpace as venues for creating an idealized identity in order to "boost one's status and self-esteem in both the online and 'real' world (p. 226)" (Urista et al., 2009). Another study found that the motivation for Facebook use determines a person's tendency to express the "true

self": those who seek to establish new relationships (romance and friendship) or end romantic relationships are more likely to express the true self (Tosun, 2012).

Such strategic use of SNS is associated with needs for impression management, a process to negotiate identity and present self in order to format certain impressions through social interactions (Goffman, 1959). By integrating content analysis and survey data, Krämer and Winter (2008) investigated self-presentation on a German SNS and named this practice "Impression Management 2.0." Scholars argue that people have greater control over the formation of impressions in computer-mediated communication as a result of its asynchronous nature and reliance on verbal cues (Ellison, Heino, & Gibbs, 2006; Walther, 1996). However, impression management on SNS presents certain challenges. For example, although a person would like to present himself or herself in a positive way, it is not possible to customize one's online impression for each interaction (Krämer & Winter, 2008). Furthermore, people who know the person in real life may "provide accountability" for online self-presentations (Back et al., 2010).

According to Goffman's (1959) work, strategic impression management is implemented through the making of a series of decisions regarding information (Cheung et al., 2011). In the present study, it is assumed that proactive and reactive health information sharing on Facebook may include practices of online impression management. For example, proactive and reactive information sharing may provide clues about the account owner's media consumption, interests, knowledge about a topic, and even lifestyle. Since proactive and reactive information sharing can help construct online identities and impressions, it is plausible to hypothesize that identity exploration/self-discovery is one of the motivators for proactive and reactive information sharing behaviors.

IMPORTANCE OF SHARED TOPICS

Information behavior and media use literature suggests that the content of information may help explain differences in proactive and reactive information sharing behaviors. The information must be of some instrumental, emotional, or social value so that the individual is willing to spend resources to transmit it. For instance, the information may be useful in improving group task performance or is entertaining or helpful for other people. In this study, the information topics of interest are health-related; therefore, the following review draws from public relations and communication literature to explore why people transmit certain topics.

A construct that is associated with health issue relevance is involvement. Involvement is typically defined as the personal relevance between audience and the communication or product (Andrews, Durvasula, & Akhter, 1990; Greenwald & Leavitt, 1984; Krugman, 1965, 1966; Zaichkowsky, 1985). Involvement has been identified as a determinant of information processing routes (Cacioppo & Petty, 1984; Cacioppo, Petty, Kao, & Rodriguez, 1986; Krugman, 1965) as well as resistance to persuasion (Sherif & Hovland, 1961) and to search behaviors (Andrews et al., 1990). In the situational theory of publics (STP) (Grunig & Moss, 1997), Grunig claimed that "communication behaviors of publics can be best understood by measuring how members of publics perceive situations in which they are affected by such organizational consequences" (p. 148) (Grunig & Hunt, 1984). The STP specifies three factors that predict publics' information seeking and processing: problem recognition, constraint recognition, and level of involvement (Hamilton, 1992). Extending from STP, Kim and Grunig (2011) proposed the Situational Theory of Problem Solving (STOPS) that covers a more comprehensive set of audience communication behaviors.

In addition to information seeking, STOPS includes information sharing, information forwarding, information attending, information forefending, and information permitting (Kim & Grunig, 2011; Kim & Krishna, 2014). STOPS views human communication as a purposive strategy to cope with life situations and adds situational motivation in problem solving as the mediator between the three STP predictors and communicative actions. If a person recognizes the problematic situation (problem recognition), feels connected to the situation (level of involvement), and perceives fewer obstacles to address the situation, he/she is more likely to be motivated to deal with the problem, which leads to a set of communicative actions (Kim & Grunig, 2011).

A review of literature that connects information content and the motivation to share information finds that STOPS (Kim & Grunig, 2011) provides a comprehensive framework to explain how topics influence proactive and reactive information sharing. As a theoretical framework, STOPS is of further interest to the current study because it has been tested across different health-related issues, such as weight loss, organ sales (Kim & Grunig, 2011), and organ donation (Kim et al., 2011). However, the theory focuses mainly on the instrumental aspects of information sharing and information forwarding and does not take into consideration why people choose certain channels for communicative actions or why people engage in a particular type of information behavior instead of others.

In this study, to highlight the difference between proactive and reactive information sharing behaviors proposed in the STOPS, reactive information sharing and proactive information sharing are used respectively throughout the manuscript.

EMERGING ADULTHOOD FEATURES AS A PREDICTOR OF HEALTH INFORMATION BEHAVIORS

In addition to understanding why people proactively and reactively share health-related information on social networking sites, another focus of this study is to explore who engages in these information behaviors. Previous studies that looked into the demographic and psychographic characteristics of those who share information found that among numerous variables, the factor of age has attracted considerable attention. For example, Walsh, Gwinner, and Swanson (2004) compiled a table that compares previous research on the characteristics of market mavens; however, findings are inconclusive. The table shows that across seven studies of age, mavenism played no role, but three other studies indicated that market mavens are likely to be younger (Walsh, Mitchell, Wiedmann, Frenzel, & Duvenhorst, 2002; Wiedmann, Walsh, & Mitchell, 2001; Williams & Slama, 1995). Still another study reported a negative relationship between age and posting links on Facebook (McAndrew & Jeong, 2012). Moreover, age did not turn out to be a significant predictor of frequency of either link postings or content of shared links on Facebook (Baek, Holton, Harp, & Yaschur, 2011). Such mixed results strongly imply that mediators and/or moderators may determine the relationship between age and information behaviors. Conceptually, it is also plausible to reason that there are intervening variables between age and information behaviors, raising questions about why younger people are more likely to share information. The present study seeks to theorize the process from a developmental perspective: the theory of emerging adulthood (Arnett, 2000).

In light of changes in social context that have occurred over the past 50 years, Arnett (2000) proposed the theory of emerging adulthood. Emerging adulthood represents the transition from adolescence to early adulthood and refers to "a period from

late teens through twenties" with a focus on the ages of 18-25 (Arnett, 2000). According to Arnett's theory, this transitional phase is prolonged due to industrialization and advanced education, and the phase should be considered as a unique developmental stage different from adolescence and young adulthood. Five defining characteristics distinguish emerging adulthood from adolescence and young adulthood: identity exploration, instability, self-focus, feeling in-between, and possibilities (Arnett, 2004; Arnett & Tanner, 2006). Emerging adults have fewer social obligations coupled with a great deal of autonomy that allows them to explore who they are, to focus on themselves, and to experiment with possibilities. At the same time, emerging adulthood is a critical transitional phase of the life course, which inevitably leads to feelings of in-between and instability. Arnett (2007) further notes that these five features are not universal or exclusive to this period, but "more common during emerging adulthood than in other periods" (p. 69) (Arnett, 2007).

The theory of emerging adulthood provides an alternative viewpoint to life span development scholarship (Tanner, 2006; Tanner & Arnett, 2009). During emerging adulthood, when many new and different kinds of life events are likely to occur (Grob, Krings, & Bangerter, 2001), young people face critical turning points in life (Tanner, 2006). From an ecological perspective, adolescents' lives are embedded in their parents' systems, whereas the ecological systems of emerging adults are independent from that of their parents. Emerging adulthood represents a transitional stage when an individual moves out of his/her parents' ecological system and gradually constructs his/her own. This process is called "re-centering" and is considered the developmental task of this period (Tanner, 2006). The life span model of motivations claims that age changes the developmental environments that influence the prioritization of demands, challenges, and

opportunities for actions as well as the mapping of the normative trajectory of human lives (Hagestad & Neugarten, 1985; Nurmi, 2004).

Since emerging adulthood is considered a unique developmental stage that features re-centering, it is reasonable to assume that emerging adults have different priorities and goals, compared to adolescents and young adults. A 10-year longitudinal study that tracked changes in personal goals points out that as college students become older, their family and work-related goals increase while friend-related goals decrease (Salmela-Aro, Aunola, & Nurmi, 2007). Importantly, the results also demonstrate a growth in health-related goals. This finding suggests that emerging adults establish more health-related goals during this period, which signifies that personal motivations encourage them to understand and address health issues.

Media use patterns among emerging adults is another topic that has garnered research attention. A large proportion of emerging adults' daily lives are allocated to media use (Crux Research, 2013), especially the use of Internet-based media (Padilla-Walker, Nelson, Carroll, & Jensen, 2010). A review of media use effects indicates that emerging adults' media use is associated with lower academic performance and with higher levels of perceived social support. In turn, prosocial media content is linked to prosocial behaviors (Coyne et al., 2013). Applying U&G, Coyne et al. (2013) posit that emerging adults' media use allows them to accomplish developmental tasks and become socialized. They further argue that media use is a way for emerging adults to assert their newly gained autonomy, to maintain and establish relationships after moving out of their parents' homes, and to explore their identity of self (Coyne et al., 2013). Along the same vein, Brown (2006) proposed the media practice model, which suggests that the need for identity exploration motivates media selection that influences the evaluation and interpretation of message and determines the application of media content (J. D. Brown,

2006). However, few studies have investigated the features of emerging adulthood quantitatively (Lisha et al., 2012), let alone connected the features with communication behaviors.

In sum, the features of emerging adulthood can play a role in explaining proactive and reactive health information sharing behaviors. During this developmental stage, young people develop a greater interest in health-related issues and actively use media to fulfil their needs for exploring their identities and coping with instabilities. Based on the literature, features of emerging adulthood can be considered to contribute indirectly to different types of motivations that ultimately influence proactive and reactive health information sharing behaviors on SNS. Thus, the fourth research question is posed:

> **RQ2:** What are the relationships between features of emerging adulthood and (a) reactive health information sharing on SNSs and (b) proactive health information sharing on SNSs?

Chapter 3: Proposed Model and Hypotheses Development

This study aims to explore three dimensions of motivations for the use of social networking sites to transmit information about health topics. Based on a review of the literature, few studies have incorporated more than two dimensions of motivations when explaining information transmitting behaviors. An integrated framework that includes other motivations can, therefore, help researchers approach issues of theoretical and practical importance in a more systematic and comprehensive manner. In the present study, three theories are integrated in order to understand information transmitting behaviors: the theory of planned behavior (Ajzen, 1991) that explains aspects of information behaviors, the situational theory of problem solving (Kim & Grunig, 2011) that features the role of health topics, and the uses and gratifications theory (Katz, Blumler et al., 1973) that explores media-related motivations.

To explain proactive information sharing, the following hypotheses were proposed:

H1: (a) Attitudes toward proactive information sharing, (b) subjective proactive information sharing norms, and (c) perceived proactive information sharing control positively predict proactive health information sharing behavior on social networking sites.

H2: Motivations for addressing a health issue positively predict proactive health information sharing behaviors on social networking sites.

H3: Motivations for using SNS (virtual community, companionship, exhibitionism, relationship maintenance, pass time, and self-presentation) predict proactive health information sharing behaviors on social networking sites.

To explain reactive information sharing, the following hypotheses were proposed:

H4: (a) Attitudes toward reactive information sharing, (b) subjective reactive information sharing norms, and (c) perceived reactive information sharing control positively predict reactive health information sharing behavior on social networking sites.

H5: Motivations for addressing a health issue positively predict reactive health information sharing behaviors on social networking sites.

H6: Motivations for using SNS (virtual community, companionship, exhibitionism, relationship maintenance, pass time, and self-presentation) predict reactive health information sharing behaviors on social networking sites.

As mentioned previously, the features of emerging adulthood can be associated with entertainment, social, and identity use of media. Issues related to instability and self-focus can also relate to motivations among emerging adults to address and understand health issues. However, few published studies have investigated the relationship between emerging adulthood characteristics and health information behaviors. Therefore, in this model, features of emerging adulthood are entered as a control factor to predict proactive and reactive health information sharing behaviors on social networking sites.

Incorporating all the relationships hypothesized above, the conceptual framework is presented in Figure 1. Controlling for features of emerging adulthood, three dimensions of motivation (information behavior motivations, health topic motivations, and media use motivations) contribute to health information transmitting behavior (proactive and reactive information sharing) on SNS. In turn, information transmission behaviors are linked to behaviors that address the topic of health issues.

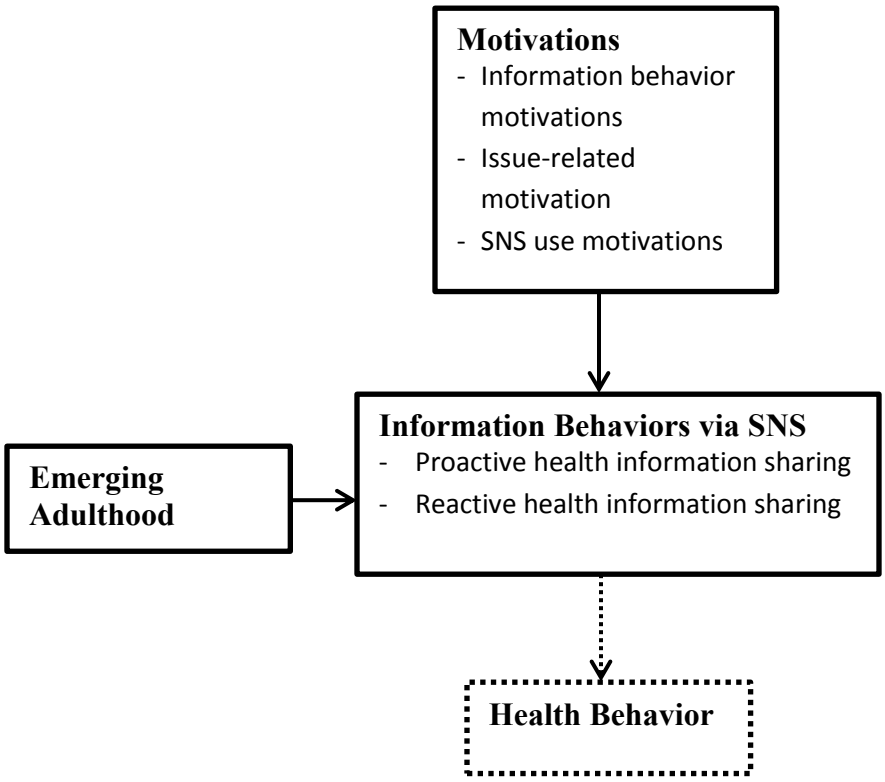


Figure 1: Conceptual Framework

Chapter 4: Methods

To statistically examine the hypotheses, this study uses structural equation modeling to test the relationships among psychographic attributes, motivations, information transmission behaviors, and health behaviors.

STUDY CONTEXT

The health issue of interest in this study is influenza. This health issue was chosen based on the significance of influenza problems on college campuses and as well as results from a preliminary study (see Appendix A) that asked students about topics of concern among those who sought and shared health information on SNSs.

As one of the leading causes of death in the U.S., influenza and pneumonia represent a major threat to public health and the economy. In 2005, absenteeism, health care visits, and hospitalization related to influenza led to costs in the U.S. of more than $40 billion (American Lung Association, n.d.; King et al., 2004). On college campuses, influenza has significant public health implications due to a closed environment and frequent interactions among students. According to 2014 Spring semester data from the American College Health Association – National College Health Assessment (ACHA-NCHA; American College Health Association, 2014), cold/flu/sore throat was ranked the fourth most common factor that influenced college students' academic performance. However, the majority of the respondents in the ACHA-NCHA study had not received a flu shot within the prior 12 months even though flu shot coverage has a strong negative relationship with the reporting of cold/flu/sore throat on academic performance ($r=.80$, $p<.001$).

In the preliminary study that I conducted, 424 college students from an undergraduate student research participant pool were asked about their experience in

seeking and sharing health-related information. Results showed that 69% of the respondents reported they had sought health information and 75% had shared health information. Open-ended questions were used to further explore topics of health information. Flu was mentioned 23 times in information sharing and 18 times in information seeking, representing one of the most popular topics after fitness and nutrition.

In light of the significance of its implications in the ACHA-NCHA study and the preliminary study results reported above, influenza is used as the context for this study.

DESIGN AND PROCEDURE

A cross-sectional survey study was employed to test the hypotheses. A survey was administered online on Qualtrics. The sample included 380 undergraduate students recruited through the Advertising Participant Pool. The Advertising Participant Pool is maintained by the Stan Richards School of Advertising and Public Relations and consists of undergraduate students who were enrolled in classes offered by the School. After approval, the link to the survey was posted on the website of the participant pool (http://advertising.utexas.edu/research). Course instructors who were informed of the availability of the study made announcements in class or via email. At the beginning of the study, participants were asked to provide informed consent before filling out an online survey that took about 30 minutes to complete. After completing the survey and providing identifying information in a separate questionnaire, participants were granted course credits. The data were collected from April 10 to May 7, 2015.

INSTRUMENTS

Based on the proposed model, the survey is comprised of four control variables: features of emerging adulthood, Facebook use intensity, gender, and age. Three

dimensions of motivations – behavioral, issue-related, and media use – were assessed with measures adapted from TPB, STOPS, and U&G models. Information behavior measures were extracted from STOPS and the health behavior intention measure was adopted from TPB. Detailed information can be found in Appendix B.

Emerging Adulthood Features

The Inventory of the Dimensions of Emerging Adulthood (IDEA) was used to assess the features of emerging adulthood (Reifman, Colwell, & Arnett, 2007). The inventory consists of 31 items, measuring the five features and an additional concept. The IDEA instrument consists of six subscales: Identity Exploration (7 items), Experimentation/Possibilities (5 items), Negativity/Instability (7 items), Other-Focused (3 items), Self-Focused (6 items), and Feeling "In-Between" (3 items). The IDEA instrument has exhibited acceptable reliability although dimensionality has not been consistent across studies (Arias & Hernández, 2007; Atak & Çok, 2008; Lisha et al., 2012; Sirsch, Dreher, Mayr, & Willinger, 2009). The original items were presented in a 4-point Likert style format. For the purpose of survey consistency, the scale for this study was modified to a 5-point Likert style format (1=strongly disagree; 5= strongly agree).

Information Behavior Motivations

Using the theory of planned behavior, information behavior motivations were conceptualized as attitudes toward proactive/reactive information sharing, subjective norms about proactive/reactive information sharing, and perceived control over proactive/reactive information sharing (Ajzen, 1991). Adapted according to the purpose of the study, each motivational factor was measured with five 5-point items (Ajzen, n.d.). For example, to measure proactive information sharing motivations, respondents were asked: "Sharing information about flu on Facebook voluntarily is good (attitude toward

behavior)," "People I know share information about flu on Facebook voluntarily (subjective norms)," and "I know how to share information about flu on Facebook voluntarily (perceived behavioral control)" (1=strongly disagree; 5= strongly agree).

Issue-related Motivation

Three 5-point Likert items (1=strongly disagree; 5=strongly agree) from the situational motivation subscale from STOPS (Kim & Grunig, 2011) were used to measure issue-related motivation: "I am curious about his problem," "I frequently think about his problem," and "I would like to better understand this problem."

SNS Use Motivations

The Facebook Motives Scale from Hollenbaugh and Ferris (2014) was used to capture SNS use motivations. The scale is based mainly on Sheldon's Facebook motives index (Sheldon, 2008b) with an additional 13 items from other studies (Barker & Ota, 2011; Hollenbaugh, 2011). The 31 5-point Likert-type items (1=strongly disagree; 5= strongly agree) consist of five dimensions: virtual community (e.g., I use Facebook to meet new people like me), companionship (e.g., I use Facebook to feel less lonely), exhibitionism (e.g., I use Facebook to get attention), relationship maintenance (e.g., I use Facebook to stay in touch with friends), and passing time (e.g., I use Facebook to occupy my time). To better capture identity-related motivations, the Self-Presentation on Facebook Questionnaire (SPFBQ) was used (e.g., I sometimes try to be someone other than my true self on Facebook) (Michikyan et al., in press; Michikyan et al., 2014).

Information Behaviors

Three items from STOPS were employed to measure proactive information sharing (1=strongly disagree; 5=strongly agree): "I post my opinion and experience about this problem on Facebook," "I post links to more information about this problem on

Facebook," "I bring this problem to the attention of people I know on Facebook." Reactive information sharing behaviors were assessed also using three items from STOPS: "I would be willing to talk to someone about his/her problem if I were asked to do so on Facebook," "I talk about this problem when others bring up the topic on Facebook," "I would join in a conversation on Facebook when someone is talking about this problem" (Kim & Grunig, 2011).

Facebook Use Intensity

The intensity of Facebook use served as a control variable that can influence Facebook information behaviors. The Facebook Intensity measure (Ellison, Steinfield, & Lampe, 2007) used in the current study captured different aspects of respondents' Facebook use: "Facebook is part of my everyday activity," "I am proud to tell people I'm on Facebook," "Facebook has become part of my daily routine," I feel out of touch when I haven't logged onto Facebook for a while," "I feel I am part of the Facebook community," "I would be sorry if Facebook shut down" (Steinfield, Ellison, & Lampe, 2008). The items appeared in a 5-point Likert format.

ANALYSIS

After data cleaning, descriptive statistics and reliability examination were performed with SPSS 22. Structural equation modeling (SEM) was performed with Mplus7.11 to test the hypotheses and the proposed model (see Figure 2). The two-step procedure (Anderson & Gerbing, 1988) used involves a confirmatory factor analysis to test the measurement model prior to testing the full structural model. Model fit was evaluated with Hooper's (2008) cut-off criteria. The significance of standardized path coefficients was documented for the purpose of hypothesis testing. To compare the motivation structures of proactive and reactive information sharing (RQ1), two models

were run separately first and then information behavior type was entered as a moderator. Model fit indices were compared first followed by a multi-group procedure to decide if paths should be constrained or freed for estimate. Both exploratory and confirmatory factor analyses were conducted to explore the structural properties of emerging adulthood features and their relationships with health information behaviors (RQ2).

After the SEM analysis, it was found that the proposed model, as well as the alternative models, did not fit the data well. Additional analyses were then conducted with regression analysis on SPSS 22.

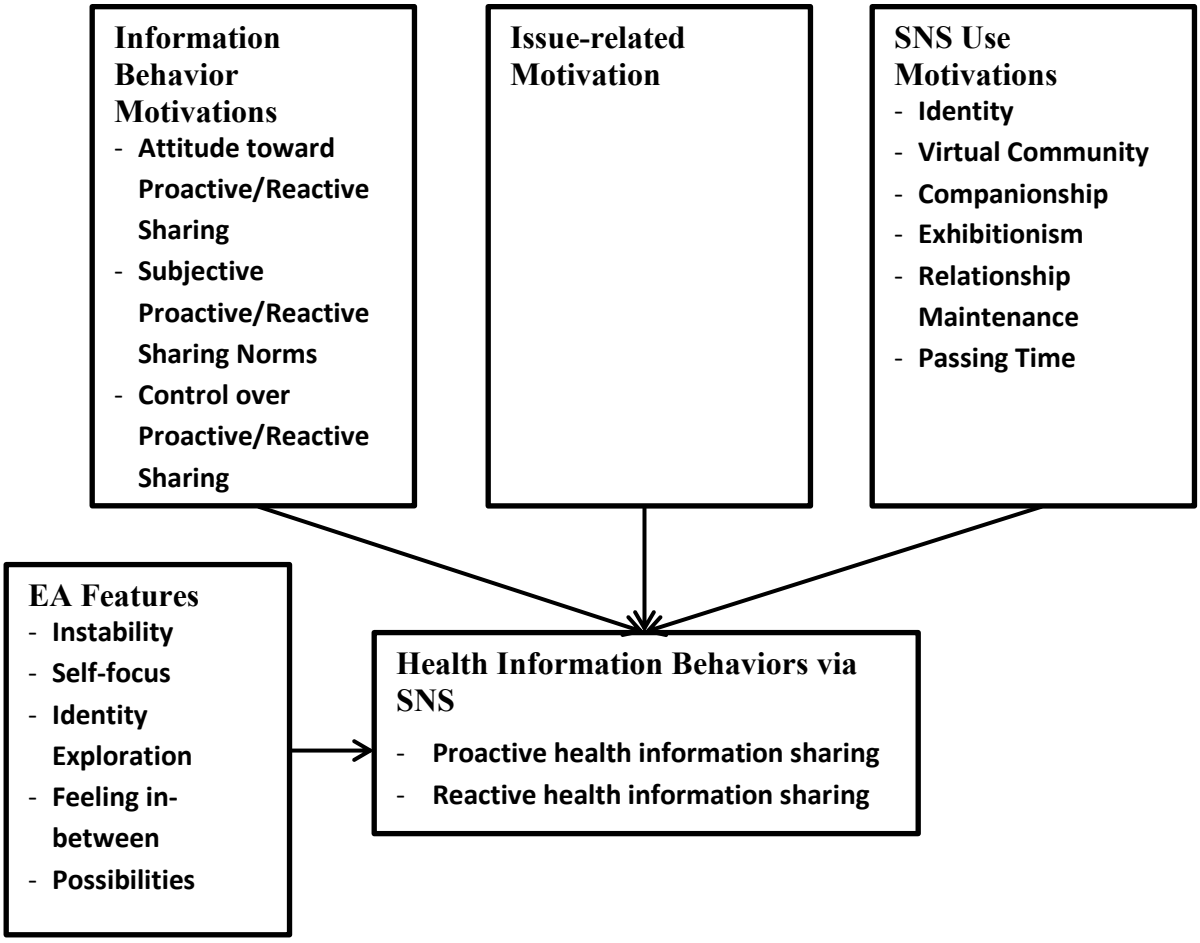


Figure 2: Structural Model for Analysis

Chapter 5: Results

During the three-week data collection period, 380 undergraduate students from the Advertising Participant Pool started the survey. Among those, 35 were marked by Qualtrics as incomplete, 3 did not answer at least 40% of the questions, and 4 cases showed obvious response patterns (i.e., same responses throughout the pages). After deleting those cases, 338 participants were included in the final sample for further analysis. In this chapter, the characteristics of the final sample are described, followed by an analysis of results from structural equation modeling that were presented to test the proposed hypotheses and address the research questions posed in Chapter 2.

SAMPLE CHARACTERISTICS

One of the purposes of this study is to explore the links between characteristics of emerging adulthood and information sharing behaviors. To examine the appropriateness of the final sample, items that sought demographic information and developmental marks were included in the questionnaire. The majority (71.3%) of the final sample were female respondents (n=241). All participants were between the ages of 18 to 28 (M=20.08, SD=1,25), which falls within the rough age range of emerging adulthood (Arnett, 2004). In terms of important developmental markers, only a small portion of the sample had a full-time job (10.1%, n=34), lived with parents (11.5%, n=39), or were married (0.6%, n=2). None reported having children. The distribution of the responses to developmental marker questions fit Arnett's (2004) description, suggesting that the final sample is consistent with that of emerging adulthood.

As additional markers, Arnett (2004) recommended researchers define emerging adulthood using psychological characteristics, such as sense of self-sufficiency, decision-making, and financial independence. On average, participants reported that they take care

of themselves (M=3.92, SD=.84), make their own decisions (M=4.40, SD=.74), and assume responsibility for their decisions (M=4.40, SD=.71) although none had yet attained financial independence (M=2.50, SD=1.23). Bi-modal distributions were observed when assessing whether participants considered themselves as adults (M=3.40, SD=1.01) and had a clear plan for their future (M=3.05, SD=1.18).

This study purposefully sampled participants who have active Facebook accounts. Respondents indicated that while Facebook is part of their everyday activity (M=3.92, SD=1.02), they do not feel "out of touch" if they are not logged into Facebook (M=3.18, SD=1.24). The majority of the sample thought they had many Facebook friends (M=3.72, SD=.90), with a median of 805 Facebook friends each. The sample is further described in Table 1.

Variables	Levels	Percentage
Gender	Female	71.3%
	Male	27.5%
Age	18-20	69.8%
	21-22	26.3%
	23+	3.9%
Marital Status	Single, not married	98.2%
	Married	0.6%
Full-time Employment	Yes	10.1%
	No	89.9%
Live with Parents	Yes	11.5%
	No	87.6%
Have Children	Yes	0%
	No	99.1%
Facebook Friends	0-100	3.9%
	101-300	10.2%
	301-600	21.7%
	601-1000	27.3%
	1001+	36.8%

Table 1: Sample Characteristics

DESCRIPTIVE STATISTICS

After data cleaning, Cronbach's alphas for each scale were calculated to evaluate reliability. The alphas ranged from .63 to .94. Most scales exhibited good internal consistency (alpha >.80), with the exception of IDEA scales ($\alpha_{instability}$=.75; $\alpha_{self\text{-}focus}$=.69; $\alpha_{in\text{-}between}$=.63; $\alpha_{possibilities}$=.76; α_{id}=.79). Because some IDEA subscales only attained acceptable or marginally acceptable reliability, two items ("time of feeling restricted" from instability subscale and "time of self-sufficiency" from self-focus subscale) were excluded from scale descriptive statistics and regression analysis. The resulting Cronbach alphas are presented in Table 2. Average score of each scale was computed to represent the overall responses related to the concepts. Also listed in Table 2 are the means and standard deviations of these scores. Bivariate correlation coefficients between scale average scores are presented in Table 3.

	Mean	Std. Deviation	Cronbach's Alpha
Emerging Adulthood			
Instability	4.02	.62	.77
Self-Focus	4.33	.52	.71
Feeling In-Between	4.19	.67	.68
Possibilities	4.41	.49	.76
Identity Exploration	4.34	.58	.79
Facebook Use Motivations			
Virtual Community	2.30	.89	.91
Companionship	2.13	.97	.93
Exhibitionism	2.50	1.04	.93
Self-Presentation	2.86	.63	.87
Relationship Maintenance	4.00	.71	.84
Issue-related Motivation	2.74	.87	.81
Information Sharing Motivations			
Attitude toward Proactive Sharing	3.04	.95	.87
Subjective Norms for Proactive Sharing	2.15	.86	.87
Perceived Control over Proactive Sharing	3.78	.93	.85
Attitude toward Reactive Sharing	3.13	.85	.85
Subjective Norms for Reactive Sharing	2.38	.88	.88
Perceived Control over Reactive Sharing	3.67	.97	.89
Information Sharing Behaviors			
Proactive Sharing Behavior	1.88	.86	.94
Reactive Sharing Behavior	2.32	.95	.76
Facebook Use Intensity	3.47	.68	.87

Table 2: Descriptive Statistics and Reliability

Correlations

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1.	Inst	1																			
2.	SF	.32**	1																		
3.	Inbet	.33**	.32**	1																	
4.	Poss	.32**	.68**	.37**	1																
5.	ID	.33**	.65**	.49**	.61**	1															
6.	VComm	-.11*	-.10	-.08	-.20**	-.08	1														
7.	FBCP	-.02	-.17**	-.08	-.31**	-.19**	.56**	1													
8.	FBEx	.09	-.01	.05	-.07	.01	.33**	.54**	1												
9.	FBSr	.10	-.04	.05	-.11	.04	.41**	.53**	.66**	1											
10.	FBRm	.16**	.20**	.16**	.25**	.31**	-.00	-.03	.25**	.30**	1										
11.	IssueM	.06	.01	.01	-.11	.01	.25**	.18**	.09	.14**	-.01	1									
12.	Attps	.08	.05	.01	-.06	.04	.16**	.11*	.19**	.27**	.14*	.32**	1								
13.	Bps	-.11	-.13*	-.17**	-.26**	-.19**	.39**	.38**	.27**	.37**	-.14**	.37**	.30**	1							
14.	SNps	-.06	-.10	-.09	-.21**	-.14*	.29**	.30**	.27**	.39**	.02	.38**	.35**	.76**	1						
15.	PBCps	.12*	.07	.16**	.12*	.16**	-.04	.02	.12*	.21**	.36**	-.01	.20**	-.08	.07	1					
16.	Brs	.03	-.06	-.12*	-.19**	-.09	.45**	.43**	.28**	.38**	-.05	.32**	.26**	.62**	.57**	.05	1				
17.	Attrs	.08	-.00	.04	-.07	.04	.22**	.22**	.21**	.24**	.17**	.25**	.50**	.26**	.27**	.26**	.39**	1			
18.	SNrs	-.04	-.09	-.10	-.18**	-.15**	.35**	.38**	.250**	.33**	-.01	.38**	.20**	.64**	.70**	.05	.67**	.35**	1		
19.	PBCrs	.10	.03	.14*	.08	.12*	-.06	.04	.12*	.19**	.31**	.03	.19**	.01	.11	.77**	.16**	.35**	.16**	1	
20.	FBUse	.10	.07	.12*	.07	.19**	.13*	.29**	.39**	.50**	.45**	.11*	.07	.10	.18**	.27**	.17**	.18**	.18**	.21**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Inst= instability; SF= self-focus; Inbet = feeling in-between; Poss=possibilities; ID=identity exploration; VComm = virtual community; FBCP = companionship; FBEx= exhibitionism; FBSr= self-presentation; FBRm= relationship maintenance; IssueM= issue-related motivation; Attps= attitude toward proactive sharing; Bps= proactive sharing behavior; SNps= subjective norms of proactive sharing; PBCps=perceived behavioral control of proactive sharing; Brs = reactive sharing behavior; Attrs = attitude toward reactive sharing; SNrs = subjective norms of reactive sharing; PBCrs =perceived behavioral control of reactive sharing; FBUse= Facebook intensity

Table 3: Bivariate Correlation Matrix

The present study aims to examine the applicability of theories previously used to explain information sharing behaviors, including the Theory of Planned Behavior, the Situational Theory of Problem Solving, and Uses and Gratifications. Based on those theoretical frameworks, the following hypotheses were proposed:

H1: (a) Attitudes toward proactive information sharing, (b) subjective proactive information sharing norms, and (c) perceived proactive information sharing control positively predict proactive health information sharing behavior on social networking sites.

H2: Motivations for addressing a health issue positively predict proactive health information sharing behaviors on social networking sites.

H3: Motivations for using SNSs predict proactive health information sharing behaviors on social networking sites.

In the current study, the three theories were first tested individually and then merged into an integrated model. That approach offers opportunities to determine if theories are applicable in the study context, which focuses on influenza. Additionally, this approach highlights similarities and differences between the individual models and the integrated model, thereby making it possible to explore potential interactions among predictors.

Behavior-related Motivation for Proactive Sharing

Guided by the TPB, H1 predicts that proactive information sharing is explained by three motivational factors: attitude toward proactive information sharing, subjective norms associated with proactive information sharing, and perceived behavioral control over that behavior. The results from the structural equation modeling demonstrated a

great overall model fit ($\chi^2(57)=158.90$, p<.001; RMSEA=.07, CFI=.97, TLI=.96, SRMR=.06). The model explained a significant portion of the variability in proactive information sharing behavior ($R^2=.812$, $p<.001$).

In terms of specific paths (see Figure 3), attitude toward proactive information sharing (Att_{ps}) did not exhibit a significant relationship with proactive information sharing behavior (B_{ps}) (β=.06, $p=.15$). Subjective norms associated with the behavior (SN_{ps}) were positively correlated with proactive information sharing behavior (β=.88, $p<.001$). The perceived behavioral control did not turn out to be a significant predictor of proactive information sharing behavior (β=-.07, $p=.06$). Therefore, H1(b) was supported, but H1(a) and H1(c) were not supported.

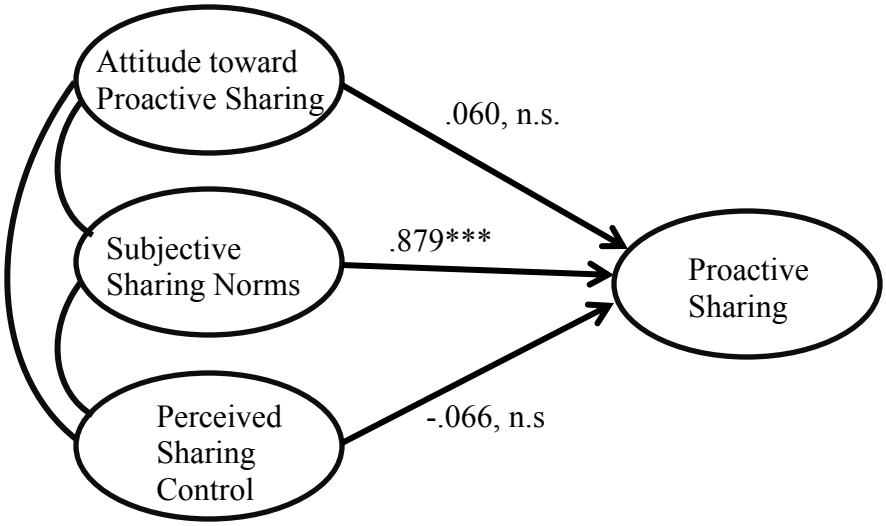


Figure 3: Theory of planned behavior model for proactive sharing

Issue-Related Motivation for Proactive Sharing

Based on the STOPS, H2 looked into the relationship between the motivations for addressing a health issue and proactive information sharing on Facebook. Overall, the model fit the data well ($\chi^2(8)=58.67$, p<.001; RMSEA=.14, CFI=.96, TLI=.93,

SRMR=.08). The model explained about 13 percent of the variability in proactive information sharing behavior (R^2=.131, p<.001). Specifically, issue-related motivation was positively associated with proactive information sharing behavior (β=.36, p<.001). Thus, H2 was supported.

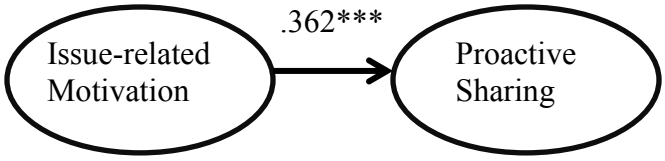


Figure 4: Issue-related motivation and proactive sharing behavior

Media-Related Motivation for Proactive Sharing

Uses and gratifications literature indicates that people's social media consumption depends on a wide array of reasons, such as virtual community, companionship, exhibitionism, relationship maintenance, and passing-the-time. Theoretically, it is plausible that motivations related to Facebook use are linked also to a particular way of using Facebook, that is, for purposes of information sharing. However, little information is available about the specific roles of different types of media use information. As a result, H3 addresses only the existence of associations without specifying the relative importance of each type of motivation or the expected directions of the associations.

In general, the model did not attain a good fit with the data, with most fit indicators performing decently (χ^2(815)=1986.49, p<.001; RMSEA=.07, CFI=.89, TLI=.88, SRMR=.10). The U&G model, however, does explain a significant portion of the variability in proactive information sharing behavior (R^2=.222, p<.001). Specifically, in the current study, results with regard to virtual community (β=.21, p<.001), relationship maintenance (β=-.25, p<.001) and self-presentation (β=.30, p<.01) appear to be significant predictors of proactive information sharing on Facebook. On the other

hand, companionship (β=.10, p =.21), exhibitionism (β=-.02, p =.89), and passing-the-time (β=-.01, p =.82) did not turn out to have significant associations with proactive information sharing behavior (see Figure 5).

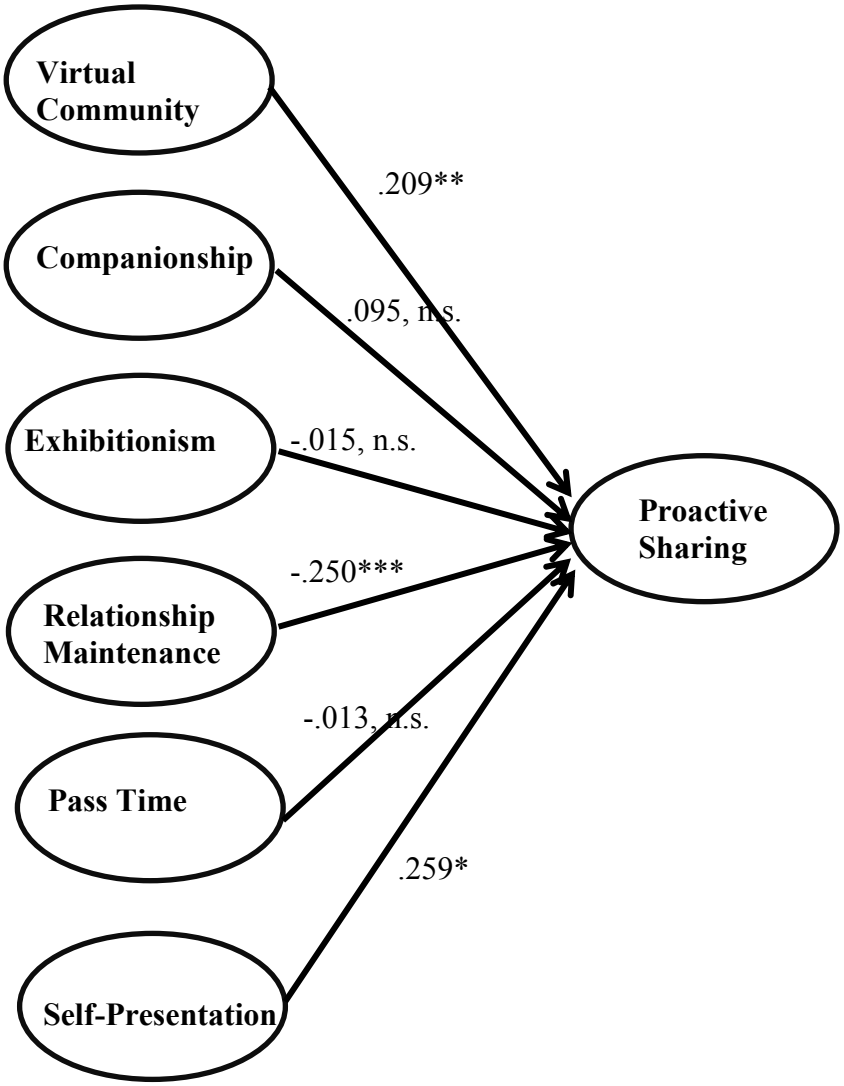


Figure 5: Uses and gratifications model for proactive sharing

Integrated Model for Proactive Sharing

The integrated model incorporates the motivational factors from TPB, STOPS, and U&G frameworks in order to provide a more comprehensive view of the reasons people actively share health information on Facebook. In addition, emerging adulthood features and the intensity of Facebook use were included in the analysis as control factors. While the integrated model explained an impressive portion of the variability in proactive information sharing behavior (R^2=.845, p<.001), the integrated model displayed a marginally acceptable fit with the data (χ^2(3984)=7436.24, p<.001; RMSEA=.05, CFI=.82, TLI=.81, SRMR=.11).

In terms of specific paths, the only significant path observed in the model involves the relationship between subjective norms and proactive information seeking behavior (β=.86, p<.001). Details about the insignificant path coefficients are shown in Figure 6.

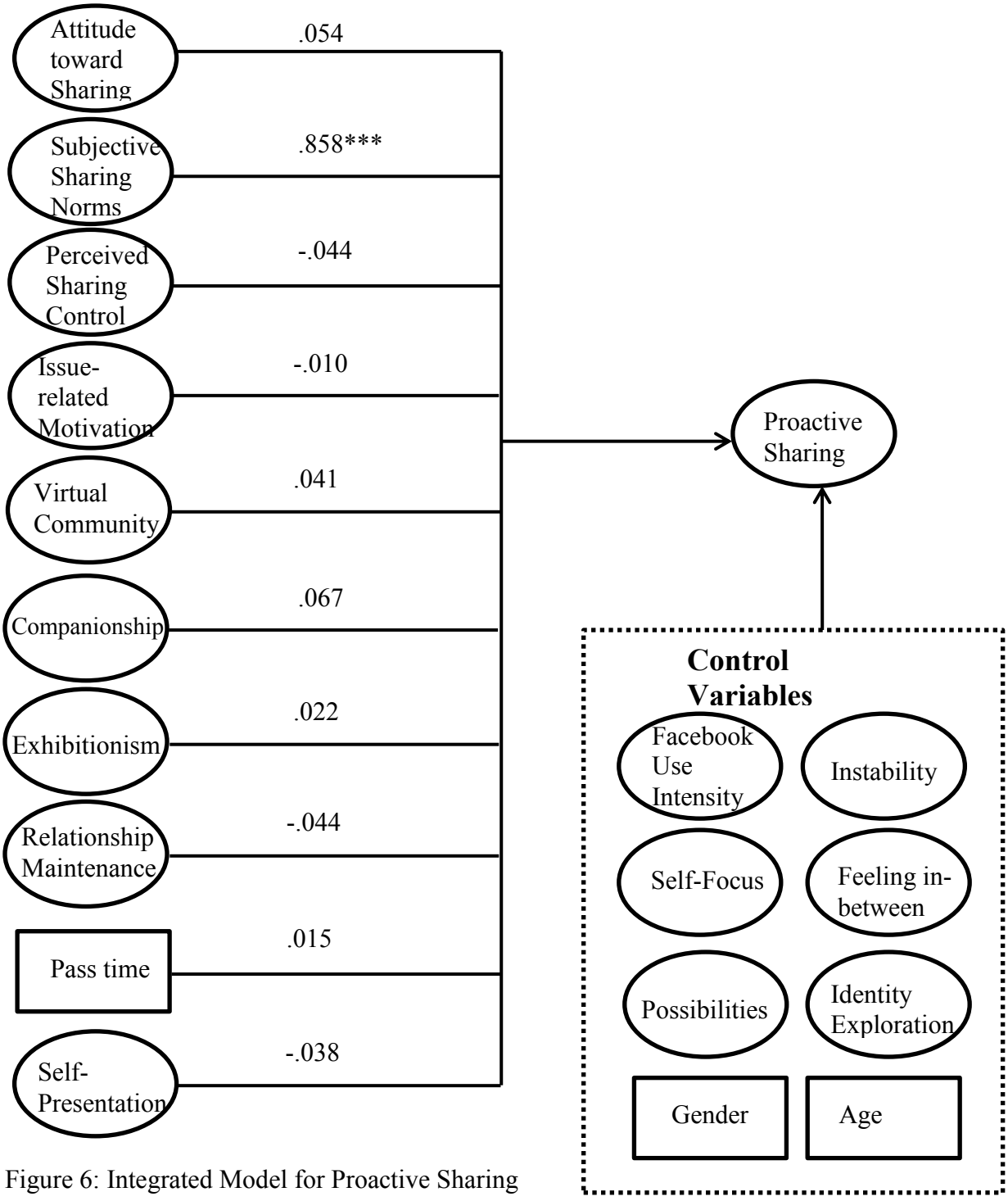


Figure 6: Integrated Model for Proactive Sharing

Alternative Model for Proactive Sharing

While the proposed integrated model exhibited a marginally acceptable model fit, the majority of the theoretical paths were insignificant. A model specified in an alternative yet theoretically plausible way was analyzed to explore further possibilities and to ensure the superiority of the proposed model. The alternative model is based on the assumption from TPB that attitude toward behavior, subjective norms, and perceived behavioral control are the closest predictors of behavioral intention as well as other factors that may contribute to behavioral intention that may be mediated by those three motivational factors (Ajzen, 1991). Guided by that assumption, in the alternative model, issue-related motivation and media use-related motivations contribute to attitude toward information sharing ($Att_{b)}$, subjective norms associated with information sharing ($SN_{b)}$, and perceived behavioral control over information sharing (PBC_b). Those three motivational factors from TPB (Att_b, $SN_{b,}$ and $PBC_{b)}$ then, in turn, predict information sharing behavior.

The alternative model explained 82.4% of the variability in proactive information sharing (R^2=.849, p<.001). Overall, the model demonstrated a marginally acceptable fit to the data (χ^2(3994)=7442.36, p<.001; RMSEA=.05, CFI=.82, TLI=.81, SRMR=.11). The results of the chi-square difference test, however, did not show a significant improvement of model fit when employing the alternative specification ($\Delta\chi^2$(10)=6.12, p>.05).

In terms of specific paths, Att_{ps} (β=.07, p=.059) and SN_{ps} (β=.89, p<.001) displayed significant relationships with proactive information sharing. Issue-related motivation was associated with SN_{ps} (β=.31, p<.001) and Att_{ps} (β=.33, p<.001), while self-presentation as Facebook use motivation was linked to SN_{ps} (β=.38, p<.01), and Att_{ps} (β=.33, p<.01), and PBC_{ps} (β=.30, p<.05). On the other hand, significant negative

relationships were observed between relationship maintenance and SN_{ps} (β=-.22, p<.001) but the association between relationship maintenance and PBC_{ps} (β=.28, p<.001) appeared to be positive. Additional information about the alternative model is shown in Figure 7 and Table 4.

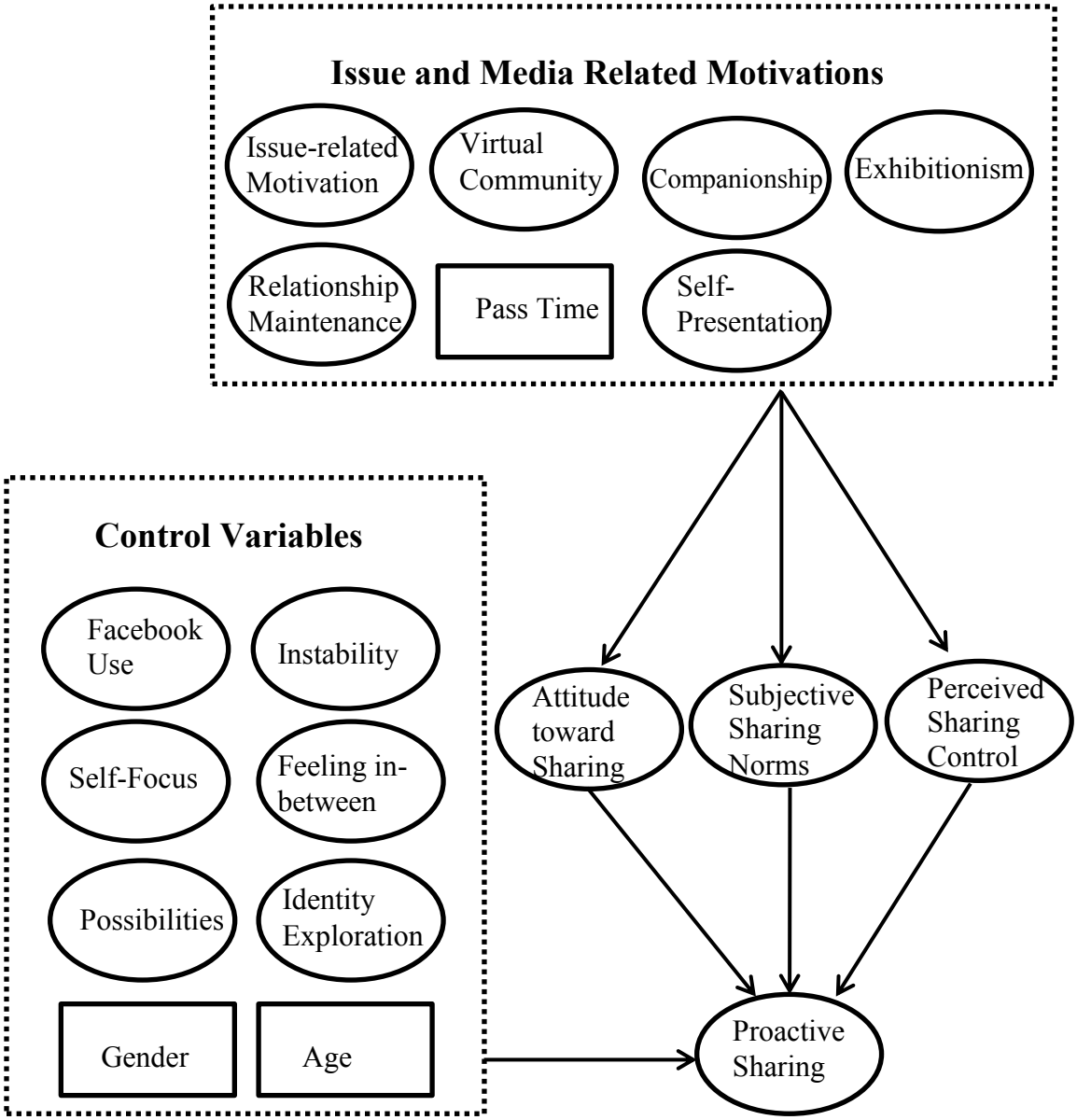


Figure 7: Proactive Sharing Model with Alternative Specification

Path	Beta	*p*-value
Issue Motivation →Attps	**.333**	**<.001**
Virtual Community → Attps	.062	.375
Companionship → Attps	-.095	.235
Exhibitionism → Attps	-.077	.518
Relationship Maintenance → Attps	.076	.212
Pass Time → Attps	-.039	.510
Self-Presentation →Attps	**.334**	**.008**
Issue Motivation →SNps	**.312**	**<.001**
Virtual Community → SNps	.122	.067
Companionship → SNps	.070	.360
Exhibitionism → SNps	-.060	.600
Relationship Maintenance → SNps	**-.220**	**<.001**
Pass Time → SNps	-.044	.437
Self-Presentation →SNps	**.382**	**.002**
Issue Motivation →PBCps	.040	.519
Virtual Community → PBCps	-.114	.112
Companionship → PBCps	.021	.794
Exhibitionism → PBCps	-.194	.106
Relationship Maintenance → PBCps	**.282**	**<.001**
Pass Time → PBCps	**-.143**	**.015**
Self-Presentation →PBCps	**.300**	**.018**
Attps → Proactive Information Sharing	.072	.059
SNps → Proactive Information Sharing	**.893**	**<.001**
PBCps → Proactive Information Sharing	-.059	.106

Note: Bolded = significant

Table 4: Path Coefficient Information for Alternative Proactive Information Sharing Model

Regression Analysis for Proactive Sharing

Since neither the integrated model nor the alternative model returned a good model fit, a hierarchical regression analysis was conducted. First, the control variables (emerging adulthood features, Facebook intensity, gender, and age) were entered in the model and then issue-related and media related motivations were added as predictors. Finally, the TPB factors were entered as the last block of the model.

The regression model explained 60% of the variability in proactive information sharing (R_{adj}=.599, p<.001). Specifically, the virtual community (β=.11, *p*<.05) and subjective norms (β=.64, *p*<.001) were positively related to proactive information sharing, but relationship maintenance (β=-.15, *p*<.01) and perceived behavioral control (β=-.09, *p*<.05) had negative associations with proactive information sharing. Interestingly, before entering TPB factors, issue-related motivation was a significant predictor of the behavior (β=.24, *p*<.001). The association became insignificant after the third step, which suggests a potential full mediation effect. Detailed information about the results of regression analysis can be found in Table 5.

Predictors	Step 1	Step 2	Step 3
Instability	-.004	-.02	-.01
Self-Focus	.11	.06	.02
Feeling In-Between	-.08	-.10	-.06
Possibilities	-.20	-.03	-.01
Identity Exploration	-.11	-.08	.01
Facebook Intensity	.10	.01	.01
Female	-.06	-.01	-.07
Age	-.03	-.04	-.004
Issue Motivation		.25***	.05
Virtual Community		.18	.11*
Companionship		.01	.04
Exhibitionism		.07	.04
Relationship Maintenance		-.20**	.03
Pass Time		-.01	-.15**
Self-presentation		.21**	.01
Attitude			.04
Subjective Norms			.64***
Perceived Behavioral Control			-.09*

Note: * *p*<.05; ** *p*<.01; *** *p*<.001

Table 5: Standardized regression coefficients in predicting proactive information sharing

PREDICTING REACTIVE HEALTH INFORMATION SHARING ON FACEBOOK

To better understand reactive health information sharing behavior on SNSs, H4 to H6 were tested with SEM and regression analysis.

H4: (a) Attitudes toward reactive information sharing, (b) subjective reactive information sharing norms, and (c) perceived reactive information sharing control positively predict reactive health information sharing behavior on social networking sites.

H5: Motivations for addressing a health issue positively predict reactive health information sharing behaviors on social networking sites.

H6: Motivations for using SNSs (virtual community, companionship, exhibitionism, relationship maintenance, pass time, and self-presentation) predict reactive health information sharing behaviors on social networking sites.

Behavior-related Motivation for Reactive Sharing

Guided by the TPB, H4 predicts that reactive information sharing is explained by three motivational factors: attitude toward reactive information sharing, subjective norms associated with reactive information sharing, and perceived behavioral control over that behavior. The results from structural equation modeling demonstrate good overall model fit ($\chi^2(57)=245.12$, $p<.001$; RMSEA=.10, CFI=.94, TLI=.91, SRMR=.09). The model explains a significant portion of the variability in reactive information sharing behavior ($R^2=.716$, $p<.001$).

In terms of specific paths (see Figure 8), attitude toward reactive information sharing (Att_{rs}) exhibited a significant, positive relationship with reactive information sharing behavior (B_{rs}) ($\beta=.22$, $p<.001$). Subjective norms associated with the behavior (SN_{rs}) were also positively correlated with reactive information sharing behavior ($\beta=.73$, $p<.001$). However, the perceived behavioral control did not turn out to be a significant

predictor of reactive information sharing behavior (β=.04, *p*=.46). Therefore, H4(a) and H4(b) were supported, but H4(c) was not supported.

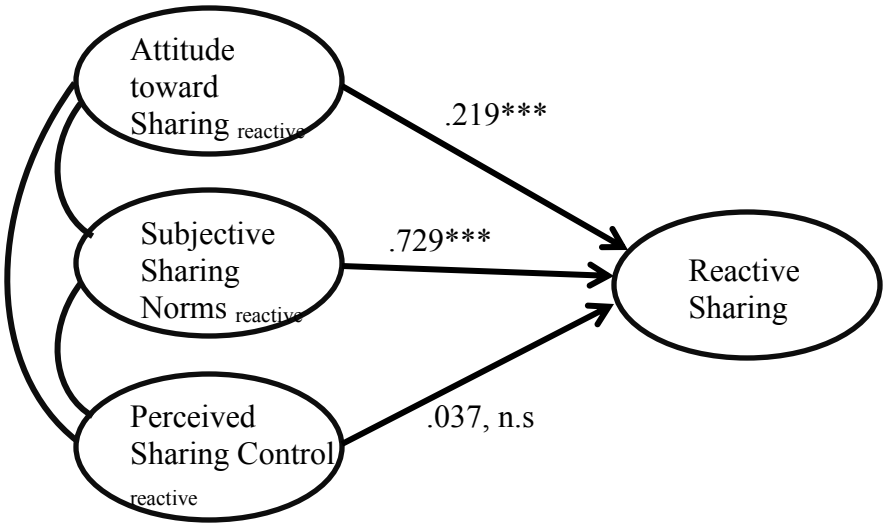


Figure 8: Theory of planned behavior model for reactive sharing

Issue-Related Motivation for Reactive Sharing

Based on the STOPS, H5 looks into the relationship between the motivations for addressing a health issue and reactive information sharing on Facebook. Overall, the model fit the data well ($\chi^2(8)=44.74$, $p<.001$; RMSEA=.12, CFI=.95, TLI=.91, SRMR=.05). The model explained about 13 percent of the variability in reactive information sharing behavior ($R^2=.105$, $p<.001$). Specifically, issue-related motivation was positively associated with reactive information sharing behavior (β=.33, *p*<.01). Thus, H5 was supported.

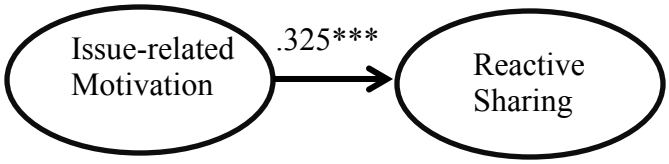


Figure 9: Issue-related motivation and reactive sharing behavior

Media-Related Motivation for Reactive Sharing

In general, the model did not attain a very good fit with the data, with most fit indicators performing decently ($\chi^2(815)=1954.27$, $p<.001$; RMSEA=.07, CFI=.88, TLI=.87, SRMR=.10). However, the U&G model explained a significant portion of the variability in reactive information sharing behavior ($R^2=.315$, $p<.001$). Specifically, virtual community (β=.31, $p<.001$), companionship (β=.15, $p<.05$), and self-presentation (β=.29, $p<.05$) appeared to be significant predictors of reactive information sharing on Facebook. On the other hand, exhibitionism (β=-.07, $p=.57$), relationship maintenance (β=-.08, $p=.19$), and passing-time (β=-.07, $p=.20$) did not turn out to have significant associations with reactive information sharing behavior (see Figure 10).

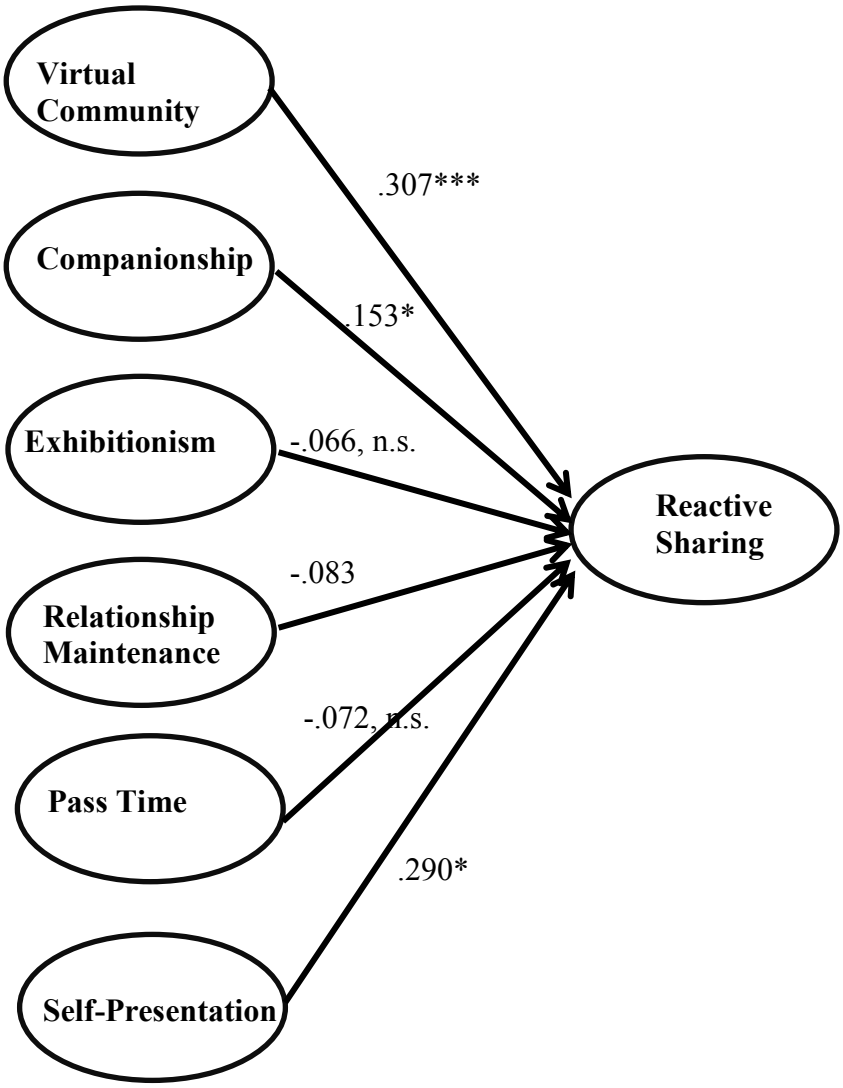


Figure 10: Uses and gratifications model for reactive sharing

Integrated Model for Reactive Sharing

The integrated model for reactive information sharing behavior is specified as being similar to the proactive information sharing model, except for the behavior of interest. While the integrated model of reactive information sharing also explained an impressive portion of the variability in proactive information sharing behavior (R^2=.806,

p<.001), the integrated model did not exhibit a very good fit to the data (χ^2(3995)=7474.29, p<.001; RMSEA=.05, CFI=.81, TLI=.80, SRMR=.11).

In terms of specific paths, three significant paths that lead to reactive information sharing were identified. Reactive information sharing on SNS is positively associated with attitude toward the behavior (β=.17, p<.05), subjective norms (β=.69, p<.001), perceived behavioral control (β=.13, p<05), virtual community (β=.18, p<.05), and self-presentation (β=.37, p<.05). See Figure 10 for details about the insignificant path coefficients.

Alternative Model for Reactive Sharing

The alternative model for reactive information sharing behavior is specified similar to the proactive information sharing model, except for the behavior of interest. It explained 96% of the variability in reactive information sharing (R^2=.962, p<.001). Overall, the model did not have a decent fit to the data (χ^2(3994)=7561.37, p<.001; RMSEA=.05, CFI=.81, TLI=.80, SRMR=.11). The examination of chi-square difference shows that the alternative model did not fit the data any better.

In terms of specific paths, Att_{rs} (β=.26, p<.001), SN_{rs} (β=.75, p<.001), and PBC_{rs} (β=.09, p=.05) displayed significant relationships with reactive information sharing. Issue-related motivation was associated with SN_{rs} (β=.31, p<.001) and Att_{rs} (β=.24, p<.001). Relationship maintenance as a Facebook use motivation was linked to SN_{rs} (β=-.13, p<.05), Att_{rs} (β=.14, p<.05), and PBC_{rs} (β=.26, p<.001). In addition, significant negative relationships were observed between virtual community and PBC_{rs} (β=-.16, p<.05), while SN_{rs} was positively related to virtual community (β=.17, p<.05) and companionship (β=.20, p<.05). For more information about the alternative model, please refer to Table 6.

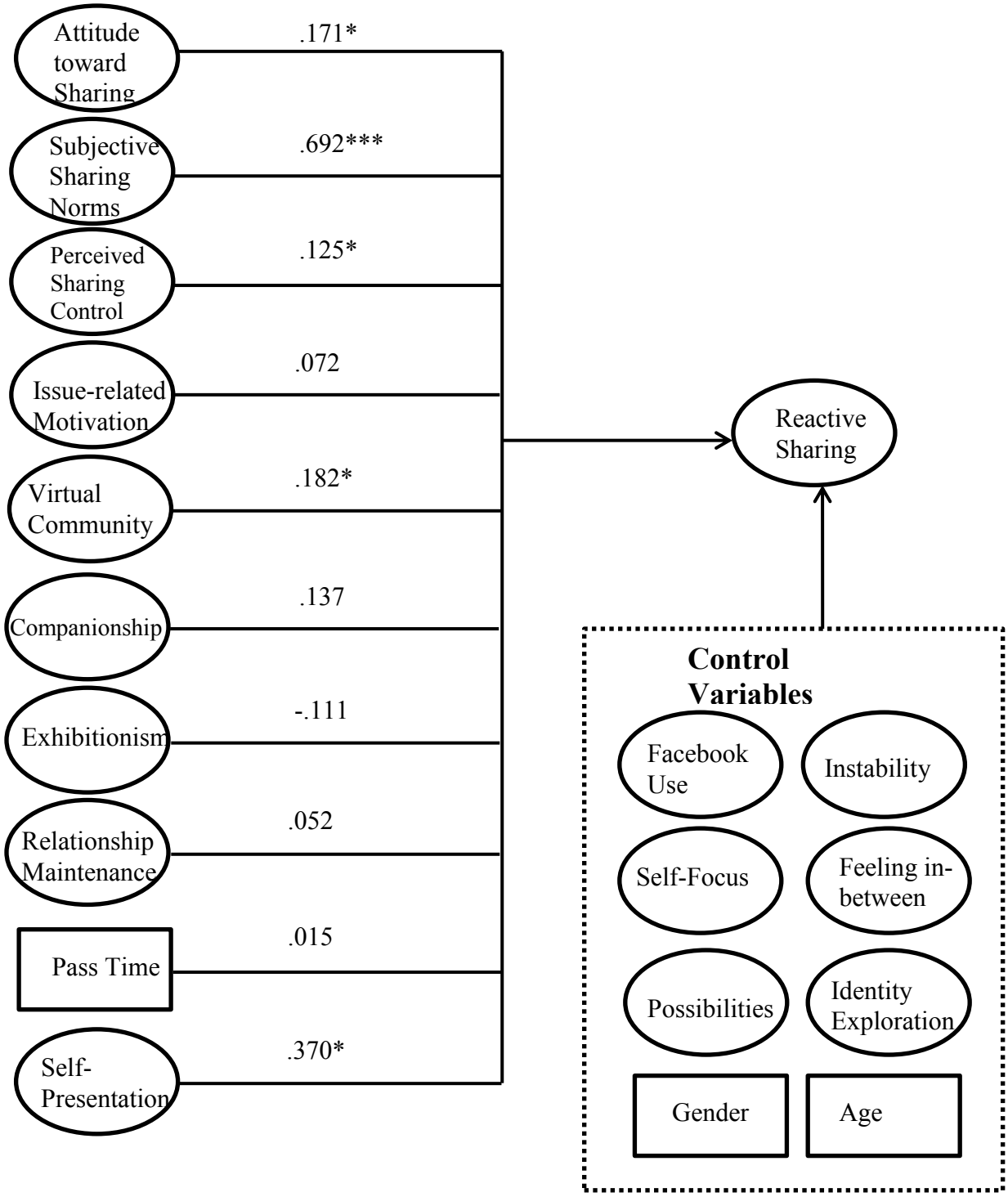


Figure 11: Integrated Model for Reactive Sharing

Path	Beta	*p*-value
Issue Motivation →Attrs	**.243**	**<.001**
Virtual Community → Attrs	.074	.311
Companionship → Attrs	.124	.132
Exhibitionism → Attrs	-.013	.920
Relationship Maintenance → Attrs	**.142**	**.023**
Pass Time → Attrs	.032	.597
Self-Presentation →Attrs	.090	.507
Issue Motivation →SNrs	**.313**	**<.001**
Virtual Community → SNrs	**.166**	**.017**
Companionship → SNrs	**.197**	**.012**
Exhibitionism → SNrs	-.133	.260
Relationship Maintenance → SNrs	**-.131**	**.032**
Pass Time → SNrs	-.099	.086
Self-Presentation →SNrs	**.342**	**.009**
Issue Motivation →PBCrs	.086	.161
Virtual Community → PBCrs	**-.159**	**.025**
Companionship → PBCrs	.093	.255
Exhibitionism → PBCrs	-.202	.107
Relationship Maintenance → PBCrs	**.259**	**<.001**
Pass Time → PBCrs	.111	.065
Self-Presentation →PBCrs	**.267**	**.046**
Attrs → Proactive Information Sharing	**.261**	**<.001**
SNrs → Proactive Information Sharing	**.749**	**<.001**
PBCrs → Proactive Information Sharing	**.093**	**.051**

Note: Bolded = significant

Table 6: Path Coefficient Information for Alternative Reactive Information Sharing Model

Regression Analysis for Reactive Sharing

Since neither the integrated model nor the alternative model returned a good model fit, a hierarchical regression analysis was conducted. The process is similar to that for proactive information sharing.

Overall, about 53% of the variability in reactive information sharing was explained by the model (R_{adj}^2=.526, p<.001). Virtual community (β=.21, p<.001), self-presentation (β=.12, p<.05), attitude toward reactive information sharing (β=.14, p<.01),

and subjective norms (β=.47, p<.001) all exhibited positive relationships with reactive information sharing behavior. On the other hand, relationship maintenance negatively predicted reactive information sharing (β=-.13, p<.01). Again, before entering TPB variables, issue-related motivation was a significant predictor (β=.19, p<.001) but became insignificant after TPB factors were added (β=.02, p=.69).

Predictors	Step 1	Step 2	Step 3
Instability	.126*	.122*	.100*
Self-Focus	.106	.044	.017
Feeling In-Between	-.085	-.094	-.089
Possibilities	-.201*	-.033	-.034
Identity Exploration	-.064	-.024	.045
Facebook Intensity	.143*	.045	.021
Female	.024	.097*	.082*
Age	.074	.054	.077
Issue Motivation		.188***	.017
Virtual Community		.281***	.213***
Companionship		.108	.032
Exhibitionism		-.032	-.032
Relationship Maintenance		-.101	-.131**
Pass Time		-.085	-.082
Self-presentation		.200**	.122*
Attitude			.144**
Subjective Norms			.472***
Perceived Behavioral Control			.075

Note: * p<.05; ** p<.01; *** p<.001

Table 7: Standardized regression coefficients in predicting reactive information sharing

RQ1: COMPARISON BETWEEN PROACTIVE AND REACTIVE SHARING

Paired-sample t-tests were conducted to compare the means of variables corresponding to the information sharing behaviors. While respondents had similar attitudes toward proactive and reactive information sharing (t(331)=-1.818, p=.07), they perceived lower social pressure to proactively share information (t(333)=-6.03, p<.001) and higher control over proactive information sharing (t(328)=2.83, p<.01).

While performing the multi-group modeling, Mplus returned an error message indicating a model identification issue. Therefore, instead of multi-group modeling, 95% confidence intervals of path coefficients were used to compare the differences between proactive and reactive information sharing. A similar alternative approach has been used in previous communication studies (e.g., Yang, Kahlor, & Griffin, 2014).

In terms of similarity, both models exhibited mediocre fit to the data, but explained a considerable portion of the variability in respective information sharing behavior. Additionally, the results from both models suggest the importance of subjective norms and no significant difference in coefficients of the paths from subjective norms to information sharing behaviors (see Table 8).

The differences between proactive and reactive information sharing stem from the influences of perceived behavioral control and virtual community as motivations for using Facebook. In the proactive information sharing model, subjective norms were the only significant predictor of the behavior. On the other hand, in the reactive model, perceived behavioral control and virtual community turned out to be significant predictors of reactive information sharing on SNSs. Looking into the confidence interval closely, although the path coefficients seemed larger in the reactive model, the differences on path coefficients of these two paths, PBC→Sharing (95% $CI_{proactive}$=(-.121, .034), 95% $CI_{reactive}$=(.007, .243)) and Virtual Community→Sharing (95% $CI_{proactive}$=(-.045, .128), 95% $CI_{reactive}$=(.038, .326)) were not significant.

Paths	Proactive		Reactive	
	Lower	Upper	Lower	Upper
Attitude →Sharing behavior	-.030	.137	.39	.302
Subjective norms → Sharing behavior	.757	.960	.548	.836
Perceived control → Sharing behavior	-.121	.034	.007	.243
Issue motivation → Sharing behavior	-.103	.082	-.051	.196
Virtual community → Sharing behavior	-.045	.128	.038	.326
Companionship → Sharing behavior	-.032	.166	-.035	.310
Exhibitionism → Sharing behavior	-.123	.167	-.336	.113
Relationship maintenance → Sharing behavior	-.131	.043	-.127	.231
Pass time → Sharing behavior	-.063	.092	-.143	.235
Self-presentation → Sharing behavior	-.212	.135	.028	.711

Note: Bolded = significantly different

Table 8: Comparison of path coefficients of proactive and reactive models

RQ2: ROLE OF EMERGING ADULTHOOD

The second research question explores the roles of the five features of emerging adulthood: instability, feeling in-between, self-focus, possibilities, and identity exploration. Structural equation modeling was conducted to determine the associations between those features and information sharing behaviors on SNS

For proactive information sharing, the model only demonstrated a marginally acceptable fit to the data ($\chi^2(419)=1211.69$, $p<.001$; RMSEA=.08, CFI=.82, TLI=.80, SRMR=.09). The variability in proactive information sharing explained reached 24.3%, but was still insignificant ($R^2=.243$, $p=.15$). None of the five features of emerging adulthood was significantly associated with proactive information sharing behavior (see Figure 12). In the regression analysis, proactive information sharing was negatively associated with possibilities ($\beta=-.20$, $p<.05$), but the association disappeared after taking into consideration all the motivations ($\beta=-.01$, $p=.81$).

For reactive information sharing, the model did not attain a good fit ($\chi^2(419)=1180.73$, $p<.001$; RMSEA=.07, CFI=.80, TLI=.77, SRMR=.09). The variability

in reactive information sharing explained reached 20.7% but was insignificant (R^2=.207, *p*=.09). None of the five features of emerging adulthood was significantly associated with reactive information sharing behavior (see Figure 13). In the regression analysis, instability (β=.11, *p*<.05) and possibilities (β=-.39, *p*<.05) were associated with reactive information sharing behavior, but only the link between instability and reactive information sharing remained significant after entering all the motivational variables (β=.10, *p*<.05).

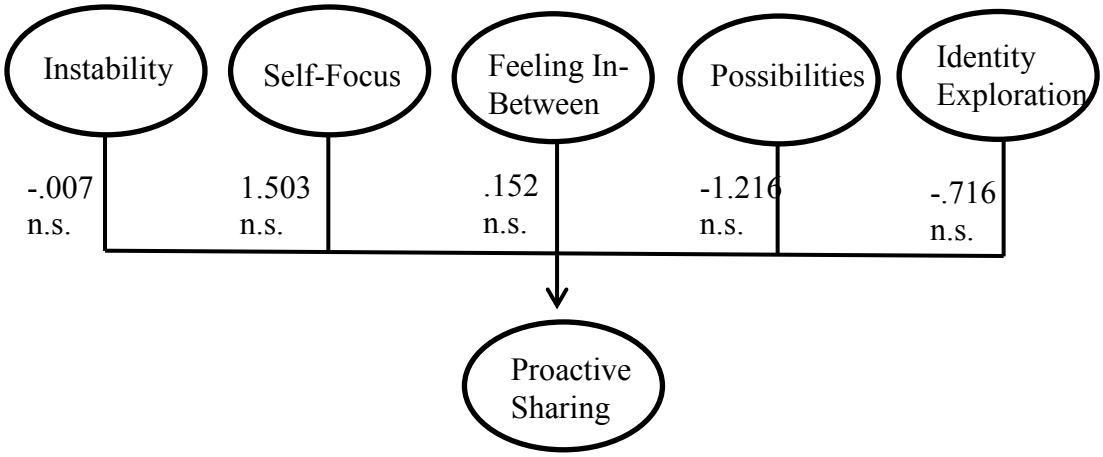


Figure 12: Emerging adulthood and proactive sharing behaviors

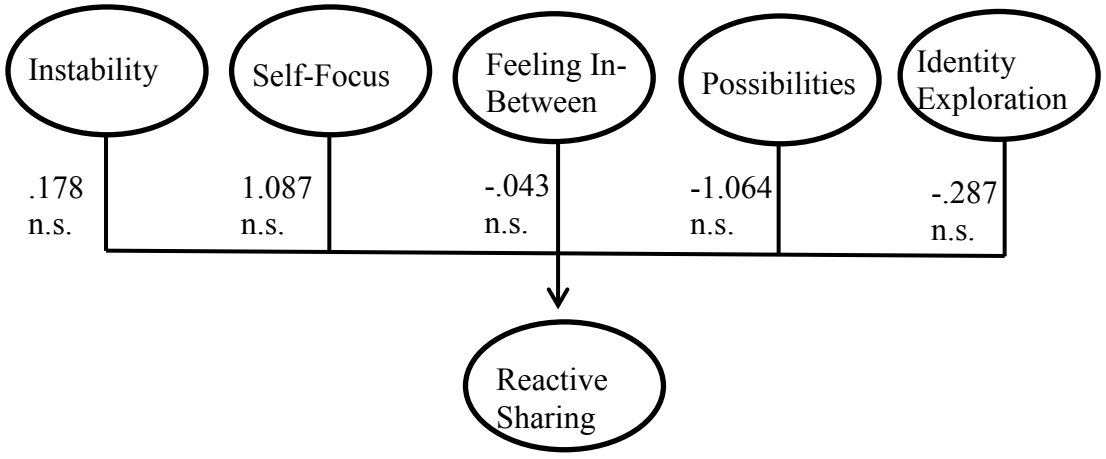


Figure 13: Emerging adulthood and reactive sharing behaviors

Chapter 6: Discussion

This dissertation seeks to achieve four main goals: (1) to construct a theoretical framework that explains information sharing behaviors in the contexts of health, (2) to empirically examine the roles of emerging adulthood in health communication, (3) to explore the similarities and differences between proactive and reactive information sharing behaviors, and (4) to identify factors that motivate emerging adults to share health-related information on social networking sites.

Based on data collected through a survey study with 338 undergraduate students, a series of structural equation modeling and regression analyses were conducted. Relative to the first goal, the present study extracts factors from the Theory of Planned Behavior (TPB), the Situational Theory of Problem Solving (STOPS), and Uses and Gratification (U&G) while also proposing an integrated model to explain both proactive and reactive health information sharing behaviors. For the second goal, this study poses a research question about the potential links between the characteristics of emerging adulthood and health information sharing behaviors. As one of the few attempts to quantitatively explore the features of emerging adulthood, a confirmatory factor analysis and structural equation modeling were performed. For the third goal, although multi-group modeling was not feasible, an alternative approach was employed to compare the variable means and path coefficients between proactive and reactive information sharing models. Finally, a set of hypotheses was tested to identify significant behavior, issues, and media-related motivations that contribute to health information sharing behaviors among emerging adults on SNS.

In this chapter, several aspects of important findings of this study are revisited. Additionally, potential implications for researchers and practitioners as well as critical limitations are discussed.

AIM 1: PROPOSING A THEORETICAL FRAMEWORK

The first goal of this study is to construct an integrated model of health information sharing that synthesizes TPB, STOPS, and U&G. In this section, the performance of each theory is first discussed followed by insights provided by results of the integrated model. Additionally, two assumptions embedded in the proposed theoretical framework are explicated.

Theory of planned behavior

The Theory of Planned Behavior has been widely used by previous researchers to understand the dissemination of information in the contexts of consumer word-of-mouth (e.g., Cheng, Lam, & Hsu, 2006; Cheung & Lee, 2012) and knowledge sharing behaviors within teams and organizations (e.g., Gagné, 2009; Hsu & Lin, 2008). The current study applies the TPB to health-related information sharing and found supportive evidence.

In predicting both proactive and reactive sharing of health-related information on SNS, the TPB appears to be a useful framework. For both contexts, the TPB attained great model fit to the data and explained a considerable amount (over 70%) of variability in the corresponding information sharing behavior. These findings provide strong support for TPB's applicability to health information sharing behaviors.

Situational Theory of Problem Solving

Following the tradition of the Situational Theory of Publics (Grunig & Moss, 1997), STOPS highlights the influence of the issue or "problem." Various information behaviors, including proactive and reactive information sharing, are considered as tools

people use to cope with a problem/issue (Kim & Grunig, 2011). The variable of issue-related motivation was extracted from STOPS and expected to contribute to emerging adults' health information sharing on SNS.

The model showed good fit and explained about 13% of the variability in both proactive and reactive information sharing behaviors on SNS. Moreover, the path coefficients are both significant and in the hypothesized direction. Consistent with previous studies that applied STOPS to health-related issues, such as weight loss (Kim & Grunig, 2011) and organ donation (Kim et al., 2011), findings of the present study serve as empirical support for the use of STOPS to explain health information behaviors.

Uses and Gratifications

Many researchers have applied the Uses and Gratification Theory (Katz, 1959) to understand the links between media users' expectancies and consumptions of certain media. Social media, especially SNS, have attracted considerable attention (Sheldon, 2008a, 2008b). This study categorizes expectancies of using social networking sites into virtual community, companionship, exhibitionism, relationship maintenance, passing the time, and self-presentation (Hollenbaugh & Ferrise, 2014; Michikyn, Dennis, & Subrahmanyam, in press) and connects these needs to information sharing behaviors.

In the current study, the U&G model demonstrated decent fit to data in both the proactive and reactive information sharing contexts. With 22% and 32% of variance explained in proactive and reactive information sharing models, respectively, the U&G models identified various needs that either foster or discourage health information sharing behaviors. Based on these findings, the U&G framework can be useful when studying health information sharing behaviors on SNS.

Synthesizing Theories

Based on the findings mentioned previously in this section, it is reasonable to suggest that TPB, STOPS, and U&G frameworks can each provide useful explanations about why people share health-related information on SNS. Given the aim of model integration, the proposed model that incorporates motivational factors from these theories was tested. Depending on the analysis technique and the information behavior of interest, the integrated models explained an impressive 53% - 85% of variability.

However, the model fit indices indicate that the integrated models did not fit the collected data very well. This observation may result from model specification. For example, the way in which the factors and paths were synthesized may be theoretically logical but not function well for the present dataset. The current model specification assumes that the behavior-related motivations from TPB, the issue-related motivation from STOPS, and media-related motivations from U&G predict proactive and reactive information sharing independently. This assumption excludes the co-variations among motivational factors and rules out the possibility that motivations might work in a hierarchical manner. It is possible that the nuanced relationships among the dimensions of motivations contributed to the less-than-ideal model fit. The alternative models were intended to take into consideration those possibilities.

Drawing from the consumer research tradition, the means-end chain approach (Gutman, 1982; Pieters, Baumgartner, & Allen, 1995), for example, suggests that consumer decision-making represents a problem-solving process in which consumers engage in certain behaviors as a means to an end (Reynolds & Whitlark, 1995). It is possible that an individual's motivation to deal with a health issue contributes to his/her attitude to disseminate information about health issues and determines his/her needs for

media use. Alternatively, it may be that the norms of sharing govern the reasons why people use certain media as well as how they address certain health-related issues.

Considering the mediocre fit of the integrated models and the possibilities of alternative yet theoretically plausible motivational structures, it is critical to test models with different reasonable specifications, as suggested by Roberts and Pashler (2000).

Alternative Specification

The alternative models tested in this study are based on the sufficiency assumption from TPB (Ajzen, 1991). That assumption suggests factors other than attitude toward behavior, subjective norms, and perceived behavioral control may merely influence behavioral intention indirectly, through mediation or moderation. Therefore, in the alternative model, only TPB variables directly contribute to proactive/reactive information sharing, while media-related and issue-related motivations are specified as the determinants of attitude toward behavior, subjective norms, and perceived behavioral control.

The results of chi-difference tests and comparison of model fit indices, however, showed that the alternative models did not perform better than the original integrated models. In the case of reactive information sharing, the model fit even deteriorated. This finding does not only imply the superiority of the original specification but rather calls for future examinations of other alternative models.

Assumption of Activeness and Rationality

One of the common characteristics of TPB, STOPS, and U&G theories is that the individual assumes an active role in the decision making process. With an emphasis on the "controlled aspects of human information processing and decision making (p. 1116)," the TPB is most appropriate for explaining and predicting deliberate behaviors

that are directed by specific goals (Ajzen, 2011). STOPS and its precursor – the Situational Theory of Publics (Grunig, 1978) – differentiate publics according to the extent of individual activeness/passiveness and posit that the degree of activeness relates to the types of communication behaviors that individuals undertake. In U&G theories, "active audience" is an important notion (Blumler, 1979) whereby media users are considered to consume media content for certain purposes.

However, the emphasis on rationality and activeness has also drawn criticism about these theories (e.g., Ajzen, 2014; Blumler, 1979; Conner, 2014; Sniehotta, Presseau, & Araújo-Soares, 2014). The performance of TPB models in this study may imply that both proactive and reactive health information sharing are primarily "planned behaviors" that require rational processing. That notion poses an interesting question: Is it possible that an information sharing behavior is processed heuristically? In other words, can a person share some health information on SNSs impulsively, automatically, or habitually? For example, is it possible that some people habitually share whatever their friends or other information sources (e.g., CDC, Oprah) post without thinking about the content, the audience, or the media platform? If so, which theories/frameworks can be used to predict heuristic information sharing behaviors? Is this behavior impulsive?

These ideas present an opportunity for future researchers to take a dual processing approach (Groves & Thompson, 1970) to explain proactive and reactive information sharing behaviors. Previous literature on habituation (e.g., Chaiken & Trope, 1999; Groves & Thompson, 1970) and impulsive media use (e.g., LaRose, Lin, & Eastin, 2003) can lend insights into the heuristic process of information behaviors among emerging adults on SNS.

Summary

This section discussed the first study aim, constructing a theoretical framework to explain people's sharing of health information on SNS. The proposed model exhibits a nice explanatory power but calls for further explorations on alternative model specification and examination of underlying assumptions.

AIM 2: TESTING THE ROLE OF THE FEATURES OF EMERGING ADULTHOOD

Emerging adulthood is a developmental stage that includes many transitions and features such as instability, possibility, self-focus, identity exploration, and feeling in-between (Arnett, 2004). It also coincides with a turning point in which people start to prioritize health as a goal in life (Salmela-Aro, Aunola, & Nurmi, 2007). The second study aim and research question explore the association between emerging adulthood and health-related information sharing behavior. In this section, results about the features of emerging adulthood are interpreted.

The regression models suggest that the unstable nature of emerging adulthood is negatively linked to sharing health-related information in response to others' requests; however, the instability is not a significant predictor of proactive information sharing. Likewise, in SEM results, instability is not associated with proactive information sharing. However, results of the current study found a marginally significant relationship between reactive sharing and instability in emerging adulthood that turned out to be positive. Both sides of the argument are reasonable. If an emerging adult's life is more unstable, he/she may have less capacity for sharing health-related information because his/her resources and attention are allocated to other problems in life. On the other hand, emerging adults who have experienced more negative events in life may learn from their experience or have more to lose if they do not address certain health issues. Therefore, that segment of

the emerging adult population may be more capable and more willing to share health information with others when asked.

Another more prominent feature of emerging adulthood that plays a role in predicting health information sharing behaviors is the feature of possibilities. In regression models, although not significant in SEM results, the feature of possibilities appears to be negatively related to both proactive and reactive information sharing on SNS. According to Arnett (2005), possibilities in emerging adulthood represent not only opportunities in life but also the implication of optimism. By definition, optimism refers to the tendency to expect positive outcomes (Scheier & Carver, 1985). Individuals who have higher expectancies of positive outcomes in general are less likely to take action or to use media to address specific health issues; thus, individuals with strong features of possibilities may be less likely to disseminate health information, either proactively or reactively.

Although the media practice model (Brown, 2006) posits that emerging adults' needs for identity exploration may determine their media consumption, in the current study, identity exploration was not a significant predictor of health information sharing behavior in either SEM or regression analysis. Judging from the significant bivariate correlation between proactive information sharing and identity exploration and the strong inter-correlation among emerging adulthood features, it is reasonable to infer that identity exploration is not directly linked to health information sharing on SNS, if the linkage even exists.

In the preliminary study, findings showed that while two features of the emerging adulthood - possibilities and identity exploration - were linked to the ability to process health information, none of the five features of emerging adulthood was associated with the motivation to process health information. Only "feeling in-between" was a significant

predictor of the likelihood that respondents had shared health information in the previous 12 months. Similar to findings in the preliminary study, results of the current study explained only a small amount of variability in information sharing behavior. Together these findings suggest that features of emerging adulthood are not directly connected to health information sharing. Instead, these features may contribute to the motivation, ability, and opportunity to process health information that, in turn, lead to health information behaviors.

Overall, the five features of emerging adulthood did not explain a significant portion of the variability in proactive or reactive sharing of health information in this study. Along with previous observations of the growth of health-related goals during emerging adulthood, this finding warrants further exploration and comparison across developmental stages, including adolescence, emerging adulthood, and early adulthood. Furthermore, future research goal for emerging adulthood and health communication should redefine the dimensionality of emerging adulthood and recruit a large sample to ensure sufficient power to capture associations of smaller effect sizes.

AIM 3: COMPARING PROACTIVE AND REACTIVE SHARING

In Chapter 2, one of the gaps in previous literature on information sharing relates to the issue of conceptualization: many studies do not differentiate between proactive information sharing and reactive information sharing. Even if some studies looked into both types of information transmission behaviors, very few conducted the comparison systematically. Therefore, in this study, a research question was posed in an attempt to provide insights into the similarities and differences between proactive and reactive information sharing behaviors.

Mean comparison

Using paired-sample t-tests, it was found that respondents were more likely to engage in reactive information sharing behaviors than in proactive ones. In addition, the average perception of social pressure to share information in response to other people's requests was greater than that of volunteering to share information. On the other hand, respondents reported feeling they had better control over proactive sharing than reactive sharing.

These results are reasonable. By definition, proactive information sharing involves the individual's active participation in many decisions, especially what to share as well as when and where to share. As a result, proactive information sharing requires more mental resources than reactive information sharing. At the same time, in making active decisions, individuals have more control over the topic, channel, and timing for information sharing. On the other hand, reactive information sharing involves the participation of more than one "actor"; also more aspects of social interactions need to be considered, such as the norms of being kind and helpful to others (Berkowitz, 1972; Isen & Levin, 1972), social exchange and the principle of reciprocity (Cropanzano & Mitchell, 2005), and turn-taking in conversation (Wiemann & Knapp, 1975). However, the social and conversational nature of reactive information sharing decreases an individual's control over certain domains of information sharing. For example, if a person's Facebook friend posts a question about the best over-the-counter medicine for seasonal flu, it is very unlikely he/she will reply by email a month later with information about diabetes because the topic, channel, and the timeframe will have been restricted. In that sense, it is not surprising that in the case of reactive information sharing, respondents in this study reported feeling more pressured with less control but exhibited a higher tendency to share.

Path comparison

Another dimension of model comparison examines the path coefficients. In the present study, the purpose of path comparison was to determine whether the motivational structures were different between the proactive and the reactive information sharing models. Essentially, this analysis tested whether the motivational factors (behavior-related, issue-related, and media-related motivations) worked in similar ways to predict the two types of information sharing behaviors.

As stated in Chapter 5, no significant differences were observed by contrasting the confidence intervals of path coefficients from the proactive and reactive information sharing models. However, perceived behavioral control and needs for self-presentation on Facebook played more important roles in the reactive information sharing model, while neither of those factors was significant in the proactive sharing model. When sharing information in response to others' requests, the ability (such as knowledge about the topic) and opportunity (such as time) to do so are critical, since the topic and timeframe are constrained by the person who posts a request.

However, the significance of needs for self-presentation on Facebook in the reactive but not proactive information sharing model was unexpected. As aforementioned, proactive information sharing allows more active participation and decision-making and theoretically should offer a better representation of the person who shares the information. Therefore, it is logical to expect that the person with greater needs for self-presentation on Facebook should be more strongly motivated to share information proactively. On the other hand, it is possible that sharing health information in response to others' requests guarantees an audience and, in that sense, fits social expectations so that the needs for self-presentation may actually encourage reactive information sharing. Moreover, people who use Facebook for self-presentation may be

more cautious when sharing information proactively because they believe others may judge them based on what they post. Future research might consider the role of visibility and symbolic meanings of proactive, versus reactive, information sharing on SNS.

In sum, the differences between proactive and reactive information sharing on SNS seem to center around social norms, behavioral control, and the needs for self-presentation. Further efforts might also focus on the mechanisms that contribute to those differences.

AIM 4: IDENTIFYING PREDICTORS OF INFORMATION SHARING BEHAVIORS

Besides examining and integrating different theoretical frameworks, the present study also documents how each motivational factor performs in explaining health information sharing behaviors on SNS. This aim guides the hypothesis formulation and testing. The following section explicates notable findings of hypothesis testing and discusses several relevant issues.

Importance of subjective norms

The perceived social norms associated with information sharing behaviors are the most prominent and most stable predictor across all the analyses in this study. As predicted by the TPB (Ajzen, 1991), there exists a positive association between subjective norms and the corresponding information sharing behavior. That is, the more a person feels the social pressure to share information related to influenza on Facebook, the more likely he/she will engage in the behavior.

This finding is consistent with previous literature on knowledge sharing in formal environments. For example, both Gagné's (2009) and Cabrera and Cabrera's (2005) models suggest that the norms of knowledge sharing predict people's intention to share information within organizations. In another study, subjective norms of knowledge

sharing were found to be significant predictors of attitudes toward knowledge sharing and intention to share knowledge within organizations (Bock, Zmud, Kim, & Lee, 2005). The prominence of subjective norms of information sharing across research contexts signifies the robustness of subjective norms as a predictor. This calls for future studies on the norms of sharing and its influences on people's willingness to share information in different contexts.

Furthermore, subjective norms of sharing appear to be part of a broad concept with multiple dimensions. The perceived social pressure to actively/reactively share health information may entail choices of channels, timing, content, and manner of information sharing. Some aspects of subjective norms of information sharing may be more important than others. For instance, in the context of consumer WOM, a study found that neither the sense of moral obligation nor reciprocity was significantly linked to spreading negative WOM (Cheung & Lee, 2012). In addition, although the present study does not distinguish descriptive norms from injunctive norms of information sharing, it is possible that the perceived expectations (injunctive norms) and observed information sharing behavior (descriptive norms) play different roles in determining health information sharing behaviors.

Another interesting issue raised by this study is the formation of subjective norms of information sharing. Namely, what factors influence people's perceptions of social norms about information sharing? In some studies (Bock, et al., 2005; Cabrera & Cabrera, 2005; Chen, Chuang, & Chen, 2012), the researchers suggested that the norms of knowledge sharing be regarded as an element or a result of organization culture along with other cultural elements of trust and cooperation, communication, fairness, egalitarianism, and support that foster organizational information sharing. Unlike organizational communication, health-related information sharing behaviors typically

take place in an informal setting. Without an institutional influence, what are the factors that constitute or set norms of information sharing on social networking sites?

A collection of studies on information behaviors and computer-mediated communication has looked into the characteristics of social networks and their links to shared values and norms within a network (e.g., Hovick, Liang, & Kahlor, 2014; Steinfield, Ellison, & Lampe, 2008). According to the Theory of Social Capital, the norms within a social network are regarded as a component of social capital (Newton, 1997) that "facilitates collective action for mutual benefits" (Woolcock, 1998). In electronic communication, social capital can be operationalized with membership/presence of a social network, sharing of values, connection and support, and network homophily (Lochner, Kawachi, & Kennedy, 1999; Williams, 2006). Literature on the determinants of social capital in social networks may offer insights on how to establish or influence the norms of sharing information within an existing social network.

The characteristics of a person's online social network constitute an important category of social environmental determinants of health information behavior on SNS. Tie strength, the dyadic bonds among network nodes, has been identified as a predictor of information transmitting behaviors (Yoon, 2012). Specifically, Bakshy et al. (2012) reported that on Facebook a person is more likely to share a link that is shared by a close friend. Another attribute of social network, homophily, describes the level of homogeneity within a network (Monge & Contractor, 2003). Chu and Kim (2011) found that tie strength positively predicts market information forwarding and seeking on SNS, while homophily is negatively associated with both types of information behaviors. The degree of homophily refers to the number of associations a network node has (Hanneman, 1998; Monge & Contractor, 2003). Moreover, a study that analyzed the relationship between social network structures and news sharing behaviors (Ma et al., 2013) reported

that while the number of connections and tie strength predicted news sharing behaviors on social media, homophily (homogeneity within network) had a negative relationship on the behavior. Examining the role of subjective norms of information sharing as a (partial) mediator that explains the associations between network characteristics and online information sharing behaviors may develop into an interesting research field.

Attitude toward behavior and perceived behavioral control

Predictive patterns about the other two TPB factors, attitude toward behavior and perceived behavioral control, are not as straightforward as those associated with subjective norms. While attitude toward information sharing in the present study was significant only in the model of reactive information sharing, the role of PBC changed across types of information sharing behaviors and statistic techniques. In the reactive model from SEM, PBC was found to foster information sharing while in the regression analysis used to predict the proactive model, PBC was found to discourage information sharing.

Although findings regarding attitude toward information sharing were consistent with the expectation of TPB and results from previous studies in other fields (Chen, et al., 2012; C.-L. Hsu & Lin, 2008), the negative association between PBC and proactive information sharing behavior seems to be counterintuitive in that people who have a stronger sense of control are less likely to voluntarily share health-related information on SNSs. In other words, the autonomous nature of proactive information sharing may actually reduce people's willingness to share information. One possible interpretation is that a great sense of control allows people NOT to select SNSs as the way to share information. If the individual has control over the manner in which information is shared, then he/she may choose NOT to use Facebook to share health information and, instead,

may choose other communication channels and platforms. It is likely that emerging adults have off-line relationships with their Facebook friends so that there are actually many opportunities to share information about a specific health issue in person or through use of alternative forms other than SNS, for example email messages.

Risk communication literature has documented a weak or insignificant role of perceived behavioral control (PBC) in predicting information processing and seeking (e.g., Hovick et al., 2014; Yang, Aloe, & Feeley, 2014), while other studies have contended that PBC contributes by explaining risk information seeking (e.g., Kahlor, 2010). The unstable roles of PBC in information sharing models may be attributed to the ease of the behavior of interest and the technology/computer proficiency of emerging adults. Thus, limited variations in the ability to share information on SNS may influence the accuracy of results.

Besides TPB variables, there is a need to consider how the U&G model predicts health information sharing on SNS. In the next section, several significant media-related motivations will be discussed.

Virtual community

The sense of belonging, one of the elements of the hierarchy of human needs (Maslow, 1943), can motivate media consumption and information behaviors. Along this vein, it is not difficult to imagine that the needs associated with the sense of virtual community can drive certain information sharing behaviors, perhaps especially during the period when emerging adults report feelings of in-between.

In this study, it is observed that information sharing behaviors, particularly the reactive ones, were positively associated with the use of SNS as a virtual community platform. That observation may well indicate that the more a person considers Facebook

as a virtual community, the more likely he/she becomes willing to engage in information sharing. That finding, observed in this study, resonates with the literature on social capital, social identity, and belongingness (Lin, Cook, & Burt, 2001; Tajfel & Turner, 1979). In that sense, information can be considered as a type of resource (Eaton & Bawden, 1991; Olaisen, 1990) to be shared and acquired through participation in a social network, providing a form of social support (House, 1981). As a member of a virtual community individuals are encouraged to help out and treat favorably other members among the in-group (Williams, 2006; Yamagishi & Mifune, 2008).

Furthermore, the sense of virtual community may indirectly influence information sharing behavior through another component of social capital – norms. In the alternative models, participation in a virtual community as a reason for using SNS was shown to be positively correlated with subjective norms. That finding of this study is consistent with other researchers' observation that perception of group norms predicts behavioral intention better when an individual has a strong identification with the reference group (Terry & Hogg, 1996). Further efforts that probe the sense of virtual community as a moderator or subjective norms of sharing as a mediator may constitute another promising avenue for future research.

Self-presentation

Across analyses in the present study, self-presentation on SNSs is an additional factor that was found to support stable relationships based on information sharing behaviors. As anticipated, those whose consumption of SNS is motivated by self-presentation were more likely to share health-related information requests from other members of their social networks. Consistent with previous studies on identity-related needs and gratification through media use (e.g., Back et al., 2010; Gentile et al., 2012;

Michikyan et al., 2014), people may strategically build and manage certain online representations through what, when, where, and how they consume media and media content.

Extending the spectacle/performance paradigm (Abercrombie & Longhurst, 1998), scholars view online platforms and SNS as a stage for self-expression (C.-W. Hsu, 2007; C.-W. Hsu, Wang, & Tai, 2011). The content, platforms, and timing of information sharing can deliver messages about the person who shares the information and, at the same time, can help viewers generate images of that person. The need to deliver information about self indirectly can be especially prominent for SNSs users, since viewership and audience feedback are readily accessible in a rather short timeframe. Therefore, studies that investigate (1) the interaction between online and offline identities, (2) audiences' inference of the proactive/reactive information sharers, and (3) possible mediators and moderators of the association between the needs for self-presentation and health information sharing can be fruitful.

Relationship maintenance and other media-related motivations

The need for relationship maintenance is also significantly associated with information sharing on SNS as revealed by this study, but in a surprising pattern. That is, negative association was observed across almost all of the analyses. Respondents who reported they were motivated by the function of relationship maintenance were less likely to share health-related information, both proactively and reactively.

Theoretically, relationship maintenance implies constant exchanges of communication and social interactions, according to norms of reciprocity. On SNS, the absence of responses after reading a friend's request for information is widely observable. Silence may signify that the receiver is ignoring the sender and thereby

straining the friendship. However, the unexpected negative paths may also be explained by alternative reactions to information requests. It is possible that people who focus on the relationship maintenance function of SNS may engage in other types of social support. For example, when a close friend asks a question on Facebook about the treatment for influenza, others may respond with emotional concerns (e.g., "Are you okay?") or extend offers tangible support (e.g., "Do you need a ride to the Health Services?") instead of responding with factual or experiential information (e.g., "My doctor recommended X"). In other words, alternative responses may crowd out the likelihood of reactive information sharing.

None of the other dimensions of media-related motivations were found to be a significant predictor of proactive or reactive information sharing. Among those dimensions, the need for passing-the-time is typically linked to habitual use of media and media content. The insignificance of that motivation, as observed in this study, may provide further support for an earlier observation that information sharing behaviors, in general, are primarily deliberate.

Issue-related motivation

Previously in this chapter, it was noted that issue-related motivation positively predicts information sharing behavior. However, this association became insignificant after taking into consideration the TPB factors. A similar pattern was observed in both the SEM and regression analyses, suggesting the existence of mediating effects. Specifically, in the alternative models, issue-related motivation turned out to contribute to subjective norms of information sharing and attitude toward information sharing behavior. These potential indirect influences of topics of information relative to information behaviors were not specified in previous frameworks that include issue/risk

perception, attitude toward sharing, and subjective norms of sharing, such as Planned Risk Information Seeking Model (PRISM) (Kahlor, 2010) and Risk Information Seeking and Processing model (RSIP) (Griffin, Dunwoody, & Neuwirth, 1999). This finding can be helpful for construction of alternative specifications of those models.

Future studies can examine other factors that can determine issue-related motivations, such as the recognition of problem, involvement, and constraints (Kim & Grunig, 2011) as well as risk perception. Risk perception, which is an individual's estimation of risk, has been widely identified as a predictor of information seeking behaviors (Griffin, Dunwoody, & Neuwirth, 1999; Hovick, Kahlor, & Liang, 2014; Kahlor, 2010; Kahlor, Dunwoody, Griffin, & Neuwirth, 2006; Yang, Aloe, & Feeley, 2014). If the risk/health topic is important and personal to the individual, he/she is more likely to engage in information seeking behavior. According to the risk information seeking and processing (RISP) model (Griffin et al., 1999), people's perceptions of risk characteristics determine their affective responses, which contribute to perceived information insufficiency and, in turn, lead to risk information seeking behavior. As an extension of the RISP model, the PRISM incorporates operationalization from the health belief model (Becker, 1974) and assesses risk perception from two dimensions: perceived susceptibility and perceived severity (Kahlor, 2010).

According to PRISM, risk perception indirectly predicts information seeking behavior through affective responses, attitude toward seeking, subjective seeking norms, and perceived seeking control. Both RISP and PRISM have been applied to explain health information seeking behaviors in various contexts: general health issues (Kahlor, 2010) and cancer (Hovick et al., 2014). At a broader level, RISP was recently applied to explain why people share information about climate change (Yang, Kahlor, et al., 2014). The climate change study suggests that information sharing and information seeking have

several predictors in common; therefore, RISP can be useful in studying information sharing behaviors in general. Although the climate change study did not find a significant role of risk perception, the distant nature of risk of interest (climate change) might be responsible for the predictive pattern.

Summary

In this section, specific behavior, issues, and media-related motivations and their roles in predicting information sharing behaviors were discussed. While the findings regarding subjective norms, attitude toward behavior, virtual community, self-presentation, and issue-related motivation were as anticipated, some unexpected results were found in relation to PBC and relationship maintenance. The mechanisms behind the findings and the determinants, mediators, and moderators of those motivational factors may be developed as topics for follow-up studies.

ADDITIONAL THOUGHTS: POTENTIAL ROLE OF GENDER

Although not the main focus of this study, gender was found to be the only factor that significantly differed across the two types of information sharing behavior. Based on the SEM results, females were more likely than males to share health-related information in response to other people's requests, but no gender differences were found regarding proactive information sharing. This may relate to socialization and culturally determined gender roles in the U.S. in which females may be generally expected to be more caring and helpful toward others compared to males who may be expected to be more competitive and self-focused. It is possible that the expectations of gender roles in real life, especially with regard to helping others with health issues, may be extended from off-line social environments to SNS.

In addition, in the current study, on average, female respondents exhibited higher intensity of Facebook use (M_{female}=3.53, M_{male}=3.24, F(1,316)=7.35, p<.01), with a higher tendency to use Facebook for relationship maintenance (M_{female}=4.06, M_{male}=3.82, F(1,316)=7.28, p<.01) and lower tendency to use Facebook for virtual community (M_{female}=2.21, M_{male}=2.49, F(1,316)=7.16, p<.01). Although female participants reported higher subjective norms for both proactive (M_{female}=3.53, M_{male}=3.24) and reactive information sharing (M_{female}=2.36, M_{male}=2.29), and issue-related motivation (M_{female}=2.76, M_{male}=2.64), the differences were not significant (see Appendix C for more information). Those findings were not consistent with previous observations that females have higher levels of health concerns, health interests, and health orientations (Green & Pope, 1999; Hibbard & Pope, 1983). Future research can explore the association between gender roles, health orientations, and health information behaviors.

LIMITATIONS

When interpreting the findings derived from this study, readers should take into consideration several limitations with regard to the sample, the survey, and the study design.

In this study, a convenient sample consisting of 338 undergraduate students from a large public research university was used. While college-age students are appropriate for the purpose of studying emerging adults, the sample may not be ideal for generalizing results. First, all the participants were recruited from a rather homogeneous sample frame; they were all enrolled in courses related to advertising or public relations when they were invited to voluntarily participate in this study and were offered grade-based incentives to complete the survey. As a result of those factors, the sample is by no means representative of all college-attending students, let alone the entire population of

emerging adults. Second, the sample size may be too small to capture less prominent relationships, especially in a complex model like that of the proposed framework. In the future, this study can be replicated by recruiting a probability sample that better represents a broader segment of emerging adults. In addition, the oversampling of females may have potentially biased the results.

Other aspects of the survey can also be reconsidered in future studies. First, some dimensions of the IDEA scale were of questionable reliability and validity. The Cronbach's alphas of the IDEA subscales ranged from .63 to .79, which are marginally acceptable. Several researchers previously suggested a revisit of the dimensionality of emerging adulthood features (Allem, Lisha, Soto, Baezconde-Garbanati, & Unger, 2013; Lisha et al., 2014). Exploratory factor analysis (EFA) and rigorous pretests should have been conducted before the questionnaire was constructed to ensure the quality of measurement. Among the survey questions, the items of behavioral motivations should have been more carefully worded. The original idea was to assess from respondents their motivations for general information sharing, without limiting their responses to specific media or information topics. However, in this study, items were adapted from the TPB in which all factors of similar levels of specificity are suggested. Future research can try to measure Att_b, SN, and PBC in relation to general information sharing and examine whether the findings of this study hold up. Third, the questionnaire used in this study was long and lacked a quality check for items, which may have induced fatigue and similarity of response patterns.

Finally, the results based on the cross-sectional design of the data collection and survey methodology should not be regarded as causal relations.

THEORETICAL AND PRACTICAL IMPLICATIONS

Despite the aforementioned limitations, the present study provides insights into a relatively new field in health communication and addresses the research aims proposed at the beginning of this dissertation: to construct a framework of information sharing that is appropriate for the health-related contexts, to explore emerging adulthood and its relationship with health communication behaviors, to compare different types of information sharing behaviors, and to identify motivational predictors of health information sharing behaviors on SNS.

Theoretical implications

First, the current study compiled literature from different fields and proposed a framework that provides a more comprehensive understanding of information sharing behaviors. Drawing from organizational communication, human resources management, marketing, public relations, and psychology, this study can be regarded as a starting point for investigations of information sharing on SNS in the context of health issues. Hopefully, efforts toward integration set forth in this study will jump-start interdisciplinary conversations and serve for development of new research ideas.

Second, this dissertation represents one of the few studies that quantitatively and empirically investigate the features of emerging adulthood as well as their influences on and associations with young people's behaviors. The results spotlight the potential for several features of emerging adulthood to be considered as determinants of health information sharing behaviors. This combined approach may further encourage future researchers to take into consideration the attributes of this unique stage of human development when studying the 18-30 age population. Moreover, this study adds to a previous review that called for the revision of the IDEA scale a decade after its development. The empirical evidence provided by this study supports a revisit of the

issue of dimensionality and may stimulate the development of new measurements for this transitional period of emerging adulthood.

Third, the comparison between proactive and reactive information sharing behaviors may serve as a distinct contribution of this study. The comparison offers an innovative perspective that encourages scholars who study the dissemination of information in various disciplines to reconsider questions about the conceptualization of information sharing behaviors. For example, should we differentiate proactive and reactive forms of information sharing? How does differentiation affect what we know about sharing information within organizations and as related to consumer word-of-mouth? These questions may encourage future researchers to reflect on the definition of information sharing and recognize differences between proactive and reactive information behaviors.

Finally, this study identified several important motivational factors that can potentially determine people's information sharing behavior on SNS. The stability of subjective norms, self-presentation on SNS along with the sense of virtual community signify the robustness of previous frameworks and add to the scholarship on mediated information behaviors. On the other hand, the unexpected predictive patterns of perceived behavioral control and needs for relationship maintenance call for further exploration on the mechanisms and conditions that contribute to those patterns.

Practical implications

Practitioners in college health services, government agencies, and non-profit organizations may use the results of this study to better understand why emerging adults are willing to spread health-related information. This study provides theory-driven and evidence-based insights into an alternative way to distribute health information that can

be more efficient and effective as well as less expensive in reaching emerging adult populations. Future development of interventions that cater to emerging adults may include, for example, elements that prime the audience with norms of sharing and strengthen a sense of community on social networking sites in ways that encourage individuals to express themselves by sharing information on health-related topics of interest.

Catering to college students, most of whom are considered emerging adults, campus health educators may emphasize a sense of virtual community as well as norms of sharing to enhance the levels of awareness and engagement in certain health issues. For instance, the university health service can recruit a group of opinion leaders to disseminate information about the upcoming flu season and flu shot schedule. Recruiting and training materials can highlight the norms of sharing, for example, in messages such as: "Your friends are counting on you to share this kind of information," or "Health information sharing/seeking is one of the most common activities on social networking sites." Other messages may encourage a sense of community, for example: "Share if you care" or "Influenza is a PUBLIC health issue on campus." In addition, the needs for self-presentation on SNS can be leveraged to incentivize peer-to-peer health information sharing, for example: "Show your leadership; share the information," or "Show your friends that you care." Based on findings from this study, an enhanced sense of virtual community, norms of sharing, and the self-presentation function of SNS can contribute to emerging adults' willingness and behaviors to share health information.

For government agencies and non-profit organizations, this study provides insights into a new communication tool that has a broad and rapid reach at a relatively low cost. The use of existing networks can save time and money while being perceived as more credible. These advantages of health information sharing on SNS are especially

important for emergencies/disasters and cases of rare diseases. For example, assuming that online networks are typically overlapping with off-line ones, the spreading of health information via SNS can be an efficient way to communicate about the preparation for an approaching hurricane. Posts on local community association Facebook and Twitter pages can prime the audience to a greater sense of community, for example, "Your neighbors may not know about this yet." The norms of sharing can be reinforced, for example, "231 people have shared this information with their friends and neighbors." In terms of rare diseases, the Amyotrophic lateral sclerosis (ALS) ice bucket challenge serves as an example where the ALS Association successfully increased awareness of the disease and raised more than $200 million (ALS Association, 2015). The campaign asked participants to share videos in which they pour ice water on themselves and nominate people to take part in the challenge. Such sharing and nominating mechanisms symbolize individuals' popularity ("This person has been nominated by many people. He must be popular") and personality ("This person's friends think she is cool enough to accept the challenge. And she cares about social causes."). Social meanings conveyed by sharing videos of the ice bucket challenge can gratify the needs for self-presentation, thus incentivizing people to share information about ALS.

REIMAGINE THE MODEL

According to the findings of this study, norms of health information sharing, a sense of virtual community, and individuals' needs for self-presentation serve as the most consistent predictors of proactive and reactive information sharing on SNS. Moreover, this study suggests future researchers explore the role of social capital and determinants of motivations. In this section, a revised conceptual framework (Figure 14) is proposed.

The revised framework is based roughly on the Structural Influence Model of Communication (SIM) which suggests that social economic positions and physical environments contribute to health communication outcomes that, in turn, impact health outcomes (Viswanath, Ramanadhan, & Kontos, 2007). The SIM also outlines several mediating and moderating conditions, such as age, gender, ethnicity, social capital, and social networks. In the revised framework, socio-demographic/psychological factors (emerging adulthood features and personality traits) determine social capital (network size, tie strength, trust, and homophily) and media use motivations (virtual community and self-presentation). Social capital and media use motivations are linked to subjective norms of health information sharing and ultimately contribute to proactive and reactive health information sharing behaviors.

Because the perceived sharing control (PBC) did not perform consistently in this study, the revised framework is proposed to include the actual sharing control. According to the Theory of Planned Behavior (Ajzen, 1991), the actual behavior control determines the relationship between behavioral intention and behavior. The actual behavioral control is typically operationalized as the ability and opportunities to perform the behavior. Therefore, in the revised framework, the ability and opportunities of information sharing serve as the moderator between subjective norms of information sharing and actual sharing behavior.

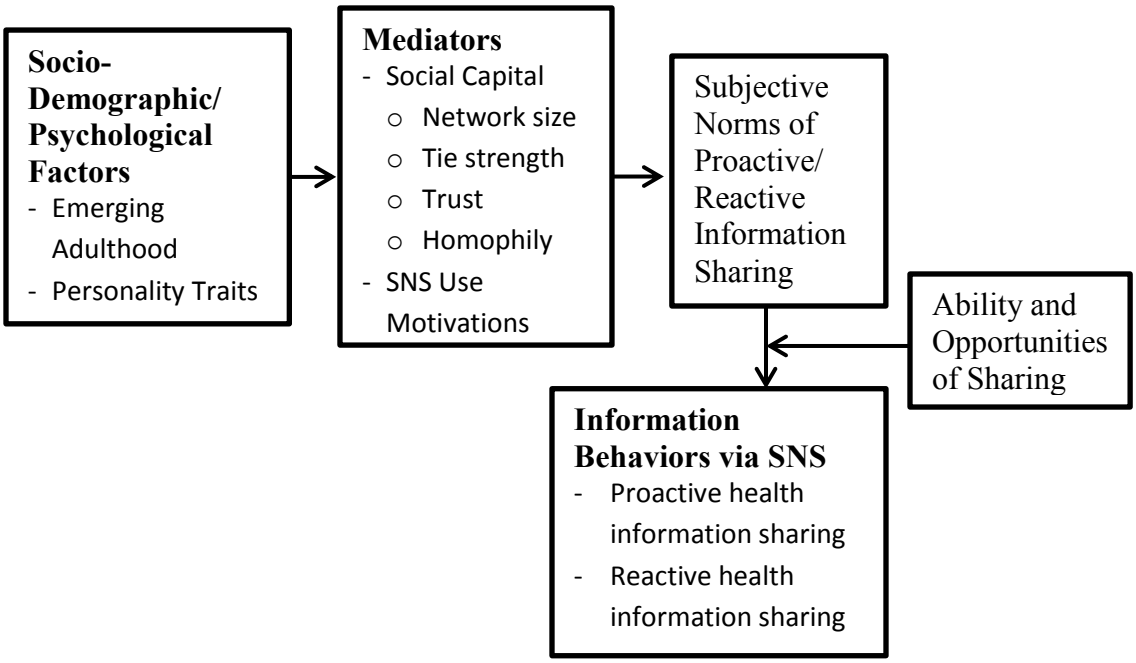


Figure 14: Revised Conceptual Framework of Information Sharing

CONCLUSION

By recognizing gaps in the existing literature along with the need for a more comprehensive understanding of social networking sites as a health communication tool to reach emerging adults, this study integrates the theory of planned behavior, the situational theory of problem solving, and the uses and gratifications approach to construct an integrated model. The model maps the role of emerging adulthood as a developmental stage and delineates associations between motivational factors and two types of information sharing behaviors – proactive and reactive. In light of the study's potential to inform the development of health interventions, future efforts may seek to replicate this study in different contexts, address methodological limitations, and extend the model by further exploration of underlying mechanisms.

Appendix A: Preliminary Study

Background

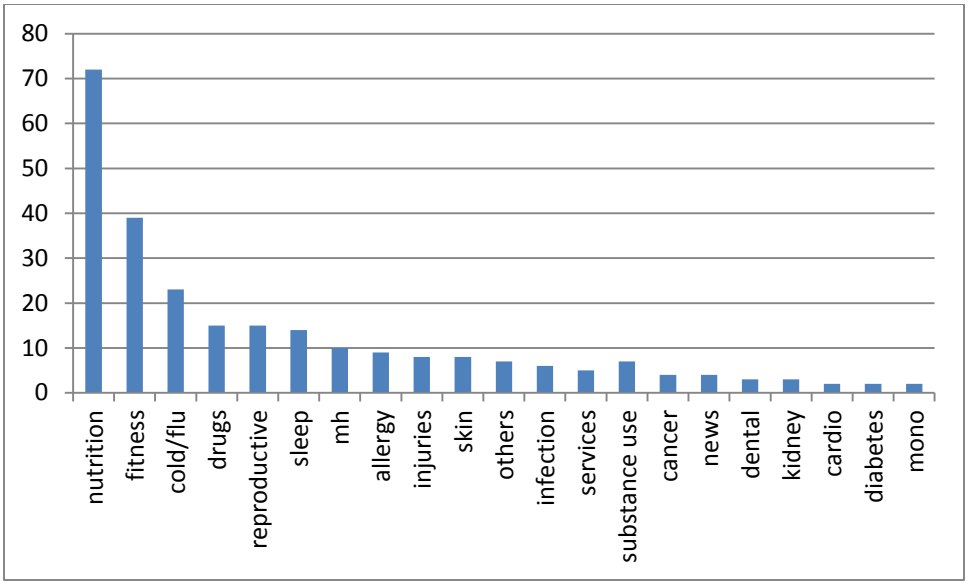
The purpose of the preliminary study was three-folded. First, the preliminary study the preliminary study sought to provide insights into college students' information behaviors and the topics of interest. Second, the preliminary study examined the psychometric properties of the IDEA scale. Third, the relationship between health information sharing behavior and emerging adulthood features was explored.

Methods

To address those goals, an online survey study was conducted in Spring 2014. The sample consisted of 424 undergraduate students recruited from the Advertising Participant Pool. Most of the participants were single (94.3%), female (66.8%), and 19-20 years of age (57.9%), but did not have a full-time job (92.7%), or live with parents (87.3%).

Results

The results showed that 312 respondents indicated they had shared information about general health issues with other people. Among those respondents, 258 specified topics of the shared information. The top three topics college students shared with others were nutrition (27.9%), fitness (15.1%), and influenza (8.9%). Other popular topics included drugs, sleep, and sex/reproduction (see the figure below).



In terms of the psychometric properties of the IDEA scale, most subscales attained acceptable level of internal consistency, except for the "feeling in-between subscale."

Subscale	Number of items	Mean	Standard Deviation	Cronbach's Alpha
Instability	7	3.03	.46	.76
Self-Focus	6	3.37	.43	.76
Others-Focus	3	2.37	.62	.68
Feeling in-between	2	3.36	.57	.66
Possibilities	5	3.51	.47	.83
Identity Exploration	6	3.45	.45	.81

Multiple regression analysis was conducted to identify the predictors of health information processing motivation and ability. In predicting health information processing ability, the model explained a significant portion of the variability (R_{adj}^2=.079, p<.001) with possibilities and identity explorations as positive predictors ($\beta_{possibilities}$

=.172, P<.05; β_{id}=.199, p<.05). In predicting health information processing motivation, the model explained a significant portion of the variability (R_{adj}^2=.071, p<.001) with others-focus as the only significant predictors (β_{others} =.168, P<.01). The detailed results can be found in the table below.

Predictors	Ability		Motivation	
	Beta	*p* value	Beta	*p* value
Female	-.053	.280	.072	.142
Possibilities	.172*	.026	.096	.219
Instability	.000	.994	.008	.885
Self-focus	-.013	.871	.131	.102
Others-focus	.025	.609	.168**	.001
Feeling in-between	-.028	.654	-.018	.776
Identity exploration	.199*	.010	.006	.935
R^2	.079***		.071***	

Through binary logistic regression, the relationship between health information sharing and emerging adulthood features was investigated. The logistic regression model exhibited significant model fit ($\Delta\chi^2(2)$=45.051, p<.001). The results showed that "feeling in-between" was the only significant predictor of the likelihood of health information sharing (β=.622, exp(β)=1.863, p<.05). That is, holding other factors constant, when there was one unit increase in "feeling in-between," the odds of sharing health information increased by 86.3%.

Conclusion

The formal study could use nutrition, fitness, or influenza as the context of research. To quantitatively measure emerging adulthood features, the IDEA scale appeared to reach acceptable reliability. The features of emerging adulthood did not seem to predict health information sharing behavior very well but were able to contribute to its determinants, motivations, and ability of health information processing.

Appendix B: Measurement Information

Concept	Measure	*M*	*SD*
Emerging Adulthood: Instability (1-5 scale)	*Is this period of your life a :*		
	time of confusion?	4.27	.85
	time of feeling restricted?*	2.52	1.08
	time of feeling stressed out?	4.24	.85
	time of instability?	3.43	1.03
	time of high pressure?	4.24	.82
	time of unpredictability?	4.17	.80
	time of many worries?	3.87	1.03
	Reliability score (α)	**.77**	
	Averaged index	26.72	4.11
Emerging Adulthood: Self-Focus (1-5 scale)	*Is this period of your life a :*		
	time of personal freedom?	4.41	.76
	time of responsibility for yourself?	4.56	.65
	time of independence?	4.34	.77
	time of self-sufficiency?*	4.00	.87
	time of focusing on yourself?	4.35	.75
	Reliability score (α)	**.71**	
	Averaged index	21.67	2.56
Emerging Adulthood: Other-Focus (1-5 scale)	*Is this period of your life a :*		
	time of settling down?	2.21	.962
	time of responsibility for others?	2.79	1.06
	time of commitments to others?	3.15	1.04
	Reliability score (α)	**.68**	
	Averaged index	8.14	2.40
Emerging Adulthood: Feeling in-between (1-5 scale)	*Is this period of your life a :*		
	time of feeling adult in some ways but not others?	4.33	.76
	time of gradually becoming an adult?	4.36	.73
	time of being not sure whether you have reached full adulthood?	3.89	1.02
	Reliability score (α)	**.63**	
	Averaged index	12.59	3.73
Emerging Adulthood: Possibilities (1-5 scale)	*Is this period of your life a :*		
	time of many possibilities?	4.69	.63
	time of exploration?	4.62	.62
	time of experimentation?	4.23	.77
	time of open choices?	4.39	.64

	time of trying out new things?	4.47	.65
	time of optimism?	4.18	.77
	Reliability score (α)	**.76**	
	Averaged index	25.56	2.76
Emerging Adulthood: Identity Exploration (1-5 scale)	*Is this period of your life a :*		
	time of finding out who you are?	4.47	.76
	time of separating from parents?	3.67	1.03
	time of defining yourself?	4.27	.80
	time of planning for the future?	4.37	.74
	time of seeking a sense of meaning?	4.19	.83
	time of deciding on your own beliefs and values?	4.34	.75
	time of learning to think for yourself?	4.42	.73
	Reliability score (α)	**.79**	
	Averaged index	29.73	3.78
Proactive Information Seeking Behavior (1-5 scale)	I post my opinion and experience on this problem on Facebook	1.85	.87
	I post links to more information about this problem on Facebook	1.84	.86
	I bring this problem to attention of people I know on Facebook	1.83	.85
	Reliability score (α)	**.94**	
	Averaged index	5.53	2.43
Proactive Information Seeking Motivation: Attitude (1-5 scale)	*Sharing information about ___ on Facebook voluntarily is*		
	Bad/good	2.92	1.09
	Useless/useful	3.03	1.13
	Unwise/wise	3.08	.94
	Reliability score (α)	**.87**	
	Averaged index	9.04	2.82
Proactive Information Seeking Motivation: Subjective Norms (1-5 scale)	People I know share information about flu on Facebook voluntarily.	2.44	1.06
	My Facebook friends share information about flu voluntarily.	2.33	.99
	People I know expect me to share information about flu on Facebook voluntarily.	1.85	.87
	My Facebook friends expect me to share information about flu on Facebook voluntarily.	1.85	.88
	Reliability score (α)	**.87**	

	Averaged index	8.47	3.24
Proactive Information Seeking Motivation: Perceived Behavioral Control (1-5 scale)	I know how to share information about flu on Facebook voluntarily.	3.69	1.10
	I have sufficient ability to share information about flu on Facebook voluntarily.	3.69	1.08
	Sharing information about flu on Facebook voluntarily is up to me.	3.94	1.00
	Reliability score (α)	**.85**	
	Averaged index	11.32	2.79
Reactive Information Seeking Behavior (1-5 scale)	I would be willing to talk to someone about his problem if they asked me on Facebook	3.18	1.03
	I talk about this problem when others bring the topic on Facebook	2.30	.97
	I would join in a conversation on Facebook when someone is talking about this problem.	2.32	1.04
	Reliability score (α)	**.76**	
	Averaged index	7.80	2.50
Reactive Information Seeking Motivation: Attitude (1-5 scale)	*Sharing information about ___ on Facebook in response to others' requests is*		
	Bad/good	3.04	.97
	Useless/useful	3.18	1.04
	Unwise/wise	3.16	.89
	Reliability score (α)	**.85**	
	Averaged index	9.37	2.55
Reactive Information Seeking Motivation: Subjective Norms (1-5 scale)	People I know share information about flu on Facebook in response to others' requests.	2.63	1.03
	My Facebook friends share information about flu in response to others' requests.	2.50	1.00
	People I know expect me to share information about flu on Facebook in response to others' requests.	2.15	.98
	My Facebook friends expect me to share information about flu on Facebook in response to others' requests.	2.13	.97
	Reliability score (α)	**.88**	
	Averaged index	.941	3.428
Reactive	I know how to share information about flu on Facebook in response to others' requests.	3.60	1.11

Information Seeking Motivation: Perceived Behavioral Control (1-5 scale)	I have sufficient ability to share information about flu on Facebook in response to others' requests.	3.63	1.07
	Sharing information about flu on Facebook in response to others' requests.	3.76	1.03
	Reliability score (α)	**.89**	
	Averaged index	11.00	2.89
Issue-related Motivation (1-5 scale)	I am curious about his problem	2.95	1.02
	I frequently think about this problem	2.24	.99
	I would like to better understand this problem.	3.01	1.02
	Reliability score (α)	**.81**	
	Averaged index	8.21	2.58
SNS Use Motivation: Virtual Community (1-5 scale)	*I use Facebook…*		
	To meet new people like me	2.37	1.06
	To meet new friends	2.46	1.13
	To meet people like me	2.40	1.07
	To find more interesting people than in real life	2.12	1.03
	To develop a romantic relationship	1.90	.92
	To find companionship	2.17	1.07
	To see people with a similar background	2.52	1.18
	Reliability score (α)	**.91**	
	Averaged index	15.94	6.02
SNS Use Motivation: Companionship (1-5 scale)	*I use Facebook…*		
	To feel less lonely	2.33	1.20
	Because it makes me feel less lonely	2.26	1.15
	So I won't be alone	2.12	1.08
	Because there is no one to talk to	2.00	1.04
	Because I have no one to talk or be with	1.97	1.05
	Reliability score (α)	**.93**	
	Averaged index	10.68	4.87
SNS Use Motivation: Exhibitionism (1-5 scale)	*I use Facebook…*		
	For attention	2.52	1.18
	To get attention	2.54	1.22
	Because my posts make me cool among my peers	2.48	1.21
	To gain fame or notoriety	2.24	1.09
	Because I like when people read things about me	2.75	1.21
	Reliability score (α)	**.93**	
	Averaged index	12.52	5.18
	I use Facebook…		

SNS Use Motivation: Relationship Maintenance (1-5 scale)	To communicate with my friends	4.24	.82
	To stay in touch with friends	4.31	.82
	To get in touch with people I know	4.19	.81
	To post a message on my friend's wall	3.32	1.15
	To send a message to a friend	3.92	.948
	Reliability score (α)	**.84**	
	Averaged index	19.98	3.58
SNS Use Motivation: Passing Time (1-5 scale)	*I use Facebook…* To occupy my time	3.89	1.05
SNS Use Motivation: Self-Presentation (1-5 scale)	I sometimes try to be someone other than my true self on Facebook.	2.00	.96
	I am a completely different person online than I am offline.	1.79	.83
	I post information about myself on my Facebook profile that is not true.	1.53	.69
	Sometimes I feel like I keep up a front on Facebook.	1.91	1.01
	Many of the things I do on my Facebook is a way of showing my sense of who I am.	3.34	1.10
	Who I am online is similar to who I am offline.	4.06	.97
	Using Facebook is a way to express my views and beliefs about what I want in life.	3.10	1.10
	The way I present myself on Facebook is how I am in real life.	3.81	.93
	I show what I stand for on my Facebook account.	3.17	1.06
	On Facebook I can try out many aspects of who I am much more than I can in real life.	2.56	1.08
	I change my photos on my Facebook profile to show people the different aspects of who I am.	2.94	1.12
	I show many sides of myself on my Facebook account.	2.85	1.13
	I compare myself to others on Facebook.	3.27	1.20
	I try to impress others with my posts on my Facebook account.	3.00	1.21
	I only show the aspects of myself on Facebook that I know people would like.	3.12	1.17
	I post things on my Facebook to show aspects of who I want to be.	3.00	1.11
	Who I want to be is often reflected in things I do on my Facebook account.	3.06	1.10
	Reliability score (α)	**.87**	

	Averaged index	48.48	10.17
Facebook Intensity (1-5 scale)	Facebook is part of my everyday activity	3.92	1.02
	I am proud to tell people I'm on Facebook	3.26	.93
	Facebook has become part of my daily routine	3.80	1.01
	I feel out of touch when I haven't logged onto Facebook for a while	3.18	1.24
	I feel I am part of the Facebook community	3.24	1.11
	I would be sorry if Facebook shut down	3.35	1.16
	Reliability score (α)	**.87**	
	Averaged index	20.75	5.04

Note: * = excluded from analysis due to low reliability

Appendix C: Gender Differences in Scale Means

Concepts	M_{female}	M_{male}	F	*p*-value
Att_{ps}	3.04	3.01	.09	.768
SN_{ps}	2.14	2.02	1.34	.248
PBC_{ps}	3.77	3.69	.58	.448
B_{ps}	1.80	1.94	1.74	.189
Att_{rs}	3.11	3.15	.16	.688
SN_{rs}	2.36	2.29	.43	.512
PBC_{rs}	3.68	3.63	.18	.673
B_{rs}	2.30	2.24	.331	.566
FB_{vc}	**2.21**	**2.49**	**7.16**	**.008**
$FB_{companionship}$	2.04	2.22	2.43	.120
$FB_{exhibitionism}$	2.46	2.45	.01	.917
FB_{rm}	**4.06**	**3.82**	**7.28**	**.007**
FB_{pt}	3.90	3.85	.16	.689
FB_{sr}	2.81	2.85	.27	.602
Issue Motivations	2.76	2.64	1.28	.259
FBUse	**3.53**	**3.25**	**.74**	**.007**

Note: Bolded = significant difference

References

Abercrombie, N., & Longhurst, B. J. (1998). *Audiences: A sociological theory of performance and imagination.* London: Sage.

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes, 50*(2), 179-211.

Ajzen, I. (2011). The theory of planned behaviour: reactions and reflections. *Psychology & health, 26*(9), 1113-1127.

Ajzen, I. (2014). The theory of planned behaviour is alive and well, and not ready to retire: a commentary on Sniehotta, Presseau, and Araújo-Soares. *Health Psychology Review*(ahead-of-print), 1-7.

Ajzen, I. (n.d.). Theory of Planned Behavior Retrieved September 22, 2014, from http://people.umass.edu/aizen/tpb.html

Alhabash, S., & McAlister, A. R. (2014). Redefining virality in less broad strokes: Predicting viral behavioral intentions from motivations and uses of Facebook and Twitter. *New Media & Society*, 1461444814523726.

Alhabash, S., Park, H., Kononova, A., Chiang, Y.-h., & Wise, K. (2012). Exploring the motivations of Facebook use in Taiwan. *Cyberpsychology, Behavior, and Social Networking, 15*(6), 304-311.

Allem, J.-P., Lisha, N. E., Soto, D. W., Baezconde-Garbanati, L., & Unger, J. B. (2013). Emerging adulthood themes, role transitions and substance use among Hispanics in Southern California. *Addictive Behaviors, 38*(12), 2797-2800. doi: http://dx.doi.org/10.1016/j.addbeh.2013.08.001

ALS Association. (2015). Impact of the Ice Bucket Challenge. Retrieved July 8, 2015, from http://www.alsa.org/news/archive/impact-of-ice-bucket-challenge.html

American College Health Association. (2014). *American College Health Association-National College Assessment II: Reference Group Executive Summary Spring 2014*. Hanover, MD: American College Health Association.

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological bulletin, 103*(3), 411-423.

Andrews, J. C., Durvasula, S., & Akhter, S. H. (1990). A framework for conceptualizing and measuring the involvement construct in advertising research. *Journal of advertising, 19*(4), 27-40.

Arias, D. F., & Hernández, A. M. (2007). Emerging adulthood in Mexican and Spanish youth theories and realities. *Journal of Adolescent Research, 22*(5), 476-503.

Arndt, J. (1967). Role of product-related conversations in the diffusion of a new product. *Journal of Marketing Research*, 291-295.

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist, 55*(5), 469-480.

Arnett, J. J. (2004). *Emerging adulthood: The winding road from the late teens through the twenties*: Oxford University Press.

Arnett, J. J. (2007). Emerging adulthood: What is it, and what is it good for? *Child development perspectives, 1*(2), 68-73.

Arnett, J. J., & Tanner, J. L. (2006). *Emerging adults in America: Coming of age in the 21st century*: Citeseer.

Atak, H., & Çok, F. (2008). The Turkish version of inventory of the dimensions of emerging adulthood (The IDEA). *International Journal of Human and Social Sciences, 2*(3), 148-154.

Atkin, C. K. (1972). Anticipated communication and mass media information-seeking. *Public opinion quarterly, 36*(2), 188-199.

Back, M. D., Stopfer, J. M., Vazire, S., Gaddis, S., Schmukle, S. C., Egloff, B., & Gosling, S. D. (2010). Facebook profiles reflect actual personality, not self-idealization. *Psychological science, 21*(3), 372-374.

Baek, K., Holton, A., Harp, D., & Yaschur, C. (2011). The links that bind: Uncovering novel motivations for linking on Facebook. *Computers in Human Behavior, 27*(6), 2243-2248. doi: http://dx.doi.org/10.1016/j.chb.2011.07.003

Bagozzi, R. P., & Dabholkar, P. A. (1994). Consumer recycling goals and their effect on decisions to recycle: A means-end chain analysis. *Psychology & Marketing, 11*(4), 313-340.

Barker, V., & Ota, H. (2011). Mixi diary versus Facebook photos: Social networking site use among Japanese and Caucasian American females. *Journal of Intercultural Communication Research, 40*(1), 39-63.

Bandura, A. (2001). Social cognitive theory of mass communication. *Media Psychology, 3*(3), 265-299.

Becker, M. H. (Ed.). (1974). *The health belief model and personal health behavior*. Thorofare, N.J.: C.B. Slack.

Berkowitz, L. (1972). Social norms, feelings, and other factors affecting helping and altruism. *Advances in experimental social psychology, 6*, 63-108.

Blumler, J. G. (1979). The role of theory in uses and gratifications studies. *Communication research, 6*(1), 9-36.

Bock, G. W., & Kim, Y. G. (2002). Breaking the myths of rewards: An exploratory study of attitudes about knowledge sharing. *Information Resources Management Journal (IRMJ), 15*(2), 14-21.

Bock, G.-W., Zmud, R. W., Kim, Y.-G., & Lee, J.-N. (2005). Behavioral intention formation in knowledge sharing: Examining the roles of extrinsic motivators, social-psychological forces, and organizational climate. *MIS quarterly*, 87-111.

Bone, P. F. (1995). Word-of-mouth effects on short-term and long-term product judgments. *Journal of Business Research, 32*(3), 213-223.

Booth-Kewley, S., & Vickers, R. R. (1994). Associations between major domains of personality and health behavior. *Journal of personality, 62*(3), 281-298.

Brehm, J. W. (1966). *A theory of psychological reactance*. New York: Academic Press.

Brehm, S. S., & Brehm, J. W. (1981). *Psychological reactance: A theory of freedom and control* (Vol. 26). New York, NY: Academic Press

Brown, J. D. (2006). Emerging Adults in a Media-Saturated World. In J. J. Arnett & J. L. Tanner (Eds.), *Emerging Adults in American: Coming of age in the 21st century* (pp. 279-299). Washington, DC: American Psychological Association.

Brown, J. J., & Reingen, P. H. (1987). Social ties and word-of-mouth referral behavior. *Journal of consumer research*, 350-362.

Cabrera, E. F., & Cabrera, A. (2005). Fostering knowledge sharing through people management practices. *The International Journal of Human Resource Management, 16*(5), 720-735.

Cacioppo, J., & Petty, R. (1984). The elaboration likelihood model of persuasion. *Advances in consumer research, 11*(1), 673-675.

Cacioppo, J., Petty, R., Kao, C. F., & Rodriguez, R. (1986). Central and peripheral routes to persuasion: An individual difference perspective. *Journal of Personality and Social Psychology, 51*(5), 1032-1043.

Capurro, D., Cole, K., Echavarría, M. I., Joe, J., Neogi, T., & Turner, A. M. (2014). The Use of Social Networking Sites for Public Health Practice and Research: A Systematic Review. *Journal of Medical Internet Research, 16*(3).

Chaiken, S., & Trope, Y. (1999). *Dual-process theories in social psychology*. New York: Guilford Press.

Chen, S.-S., Chuang, Y.-W., & Chen, P.-Y. (2012). Behavioral intention formation in knowledge sharing: Examining the roles of KMS quality, KMS self-efficacy, and organizational climate. *Knowledge-Based Systems, 31*, 106-118.

Cheng, S., Lam, T., & Hsu, C. H. (2006). Negative word-of-mouth communication intention: an application of the theory of planned behavior. *Journal of Hospitality & Tourism Research, 30*(1), 95-116.

Cheung, C. M., Chiu, P.-Y., & Lee, M. K. O. (2011). Online social networks: Why do students use facebook? *Computers in Human Behavior, 27*(4), 1337-1343. doi: http://dx.doi.org/10.1016/j.chb.2010.07.028

Cheung, C. M., & Lee, M. K. (2012). What drives consumers to spread electronic word of mouth in online consumer-opinion platforms. *Decision Support Systems, 53*(1), 218-225.

Chevalier, J. A., & Mayzlin, D. (2006). The effect of word of mouth on sales: Online book reviews. *Journal of Marketing Research, 43*(3), 345-354.

Chu, S.-C., & Kim, Y. (2011). Determinants of consumer engagement in electronic word-of-mouth (eWOM) in social networking sites. *International Journal of Advertising, 30*(1), 47-75.

Clark, L., & Çallı, L. (2014). Personality types and Facebook advertising: An exploratory study. *Journal of Direct, Data and Digital Marketing Practice, 15*(4), 327-336.

Conner, M. (2014). Extending not retiring the theory of planned behaviour: a commentary on Sniehotta, Presseau and Araújo-Soares. *Health Psychology Review*(ahead-of-print), 1-5.

Coyne, S. M., Padilla-Walker, L. M., & Howard, E. (2013). Emerging in a Digital World A Decade Review of Media Use, Effects, and Gratifications in Emerging Adulthood. *Emerging Adulthood, 1*(2), 125-137.

Cropanzano, R., & Mitchell, M. S. (2005). Social exchange theory: An interdisciplinary review. *Journal of management, 31*(6), 874-900.

Crux Research. (2013). 13th Annual College Explorer Survey Retrieved September 18, 2014, from

http://www.cruxresearch.com/downloads/refuel%20CE%20press%20release%20061313.pdf

Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry, 11*(4), 227-268.

Dichter, E. (1966). How Word-of-Mouth Advertising Works. *Harvard Business Review, 44*(6), 147-160.

Eaton, J. J., & Bawden, D. (1991). What kind of resource is information? *International Journal of Information Management, 11*(2), 156-165. doi: http://dx.doi.org/10.1016/0268-4012(91)90006-X

Ellison, N. B., Heino, R., & Gibbs, J. (2006). Managing impressions online: Self-presentation processes in the online dating environment. *Journal of Computer-Mediated Communication, 11*(2), 415-441.

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends:" Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication, 12*(4), 1143-1168.

Feick, L. F., & Price, L. L. (1987). The market maven: A diffuser of marketplace information. *The Journal of Marketing*, 83-97.

Fishbein, M. (1979). A theory of reasoned action: Some applications and implications. *Nebraska Symposium on Motivation, 27*, 65-116.

Freeman, B., & Chapman, S. (2008). Gone viral? Heard the buzz? A guide for public health practitioners and researchers on how Web 2.0 can subvert advertising restrictions and spread health information. *Journal of epidemiology and Community Health, 62*(9), 778-782.

Gagné, M. (2009). A model of knowledge-sharing motivation. *Human Resource Management, 48*(4), 571-589.

Gentile, B., Twenge, J. M., Freeman, E. C., & Campbell, W. K. (2012). The effect of social networking websites on positive self-views: An experimental investigation. *Computers in Human Behavior, 28*(5), 1929-1933.

Goffman, E. (1959). The presentation of self in everyday life In D. M. Newman & J. O'Brien (Eds.), *Sociology: Exploring the Architecture of Everyday Life Readings* (pp. 120-129). Thousand Oaks, CA: Pine Forge Press.

Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological assessment, 4*(1), 26-42.

Green, C. A., & Pope, C. R. (1999). Gender, psychosocial factors and the use of medical services: a longitudinal analysis. *Social Science & Medicine, 48*(10), 1363-1372. doi: http://dx.doi.org/10.1016/S0277-9536(98)00440-7

Griffin, R. J., Dunwoody, S., & Neuwirth, K. (1999). Proposed model of the relationship of risk information seeking and processing to the development of preventive behaviors. *Environmental research, 80*(2), S230-S245.

Goodey, C., & East, R. (2008). Testing the market maven concept. *Journal of Marketing Management, 24*(3-4), 265-282.

Gosling, S. D., Augustine, A. A., Vazire, S., Holtzman, N., & Gaddis, S. (2011). Manifestations of personality in online social networks: Self-reported Facebook-related behaviors and observable profile information. *Cyberpsychology, Behavior, and Social Networking, 14*(9), 483-488.

Gosling, S. D., Rentfrow, P. J., & Swann Jr, W. B. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality, 37*(6), 504-528.

Greenwald, A. G., & Leavitt, C. (1984). Audience involvement in advertising: Four levels. *Journal of consumer research*, 581-592.

Griffin, R. J., Dunwoody, S., & Neuwirth, K. (1999). Proposed model of the relationship of risk information seeking and processing to the development of preventive behaviors. *Environmental research, 80*(2), S230-S245.

Grob, A., Krings, F., & Bangerter, A. (2001). Life markers in biographical narratives of people from three cohorts: A life span perspective in its historical context. *Human Development, 44*(4), 171-190.

Grunig, J. E., & Hunt, T. (1984). *Managing public relations*. New York: Holt, Rinehart and Winston.

Grunig, J. E., & Moss, D. (1997). A situational theory of publics: Conceptual history, recent challenges and new research. In D. Moss, T. MacManus & D. Verčič (Eds.), *Public relations research: An international perspective* (Vol. 3, pp. 3-46). London, England: International Thompson Business Press.

Gutman, J. (1982). A means-end chain model based on consumer categorization processes. *The Journal of Marketing*, 60-72.

Groves, P. M., & Thompson, R. F. (1970). Habituation: a dual-process theory. *Psychological review, 77*(5), 419-450.

Hagestad, G. O., & Neugarten, B. L. (1985). Age and the life course. *Handbook of aging and the social sciences, 2*, 35-61.

Hamilton, P. K. (1992). Grunig's situational theory: A replication, application, and extension. *Journal of Public Relations Research, 4*(3), 123-149.

Hanneman, R. (1998). Introduction to Social Networks. Retrieved from http://www.analytictech.com/networks.pdf

Harris, J. K., Mueller, N. L., & Snider, D. (2013). Social media adoption in local health departments nationwide. *American Journal of Public Health, 103*(9), 1700-1707.

Hennig-Thurau, T., Gwinner, K. P., Walsh, G., & Gremler, D. D. (2004). Electronic word-of-mouth via consumer-opinion platforms: What motivates consumers to articulate themselves on the Internet? *Journal of interactive marketing, 18*(1), 38-52.

Herr, P. M., Kardes, F. R., & Kim, J. (1991). Effects of word-of-mouth and product-attribute information on persuasion: An accessibility-diagnosticity perspective. *Journal of consumer research*, 454-462.

Hibbard, J. H., & Pope, C. R. (1983). Gender roles, illness orientation and use of medical services. *Social Science & Medicine, 17*(3), 129-137.

Hinds, P. J., & Weisband, S. P. (2003). Knowledge sharing and shared understanding in virtual teams. In C. B. Gibson & S. G. Cohen (Eds.), *Virtual teams that work: Creating conditions for virtual team effectiveness* (pp. 21-36). San Francisco: Jossey-Bass.

Ho, J. Y., & Dempsey, M. (2010). Viral marketing: Motivations to forward online content. *Journal of Business Research, 63*(9), 1000-1006.

Hollenbaugh, E. E. (2011). Motives for maintaining personal journal blogs. *Cyberpsychology, Behavior, and Social Networking, 14*(1-2), 13-20.

House, J. S. (1981). *Work stress and social support*. Reading, MA: Addison-Wesley.

Hovick, S. R., Kahlor, L., & Liang, M.-C. (2014). Personal Cancer Knowledge and Information Seeking Through PRISM: The Planned Risk Information Seeking Model. *Journal of Health Communication*(ahead-of-print), 1-17.

Hovick, S. R., Liang, M.-C., & Kahlor, L. (2014). Predicting Cancer Risk Knowledge and Information Seeking: The Role of Social and Cognitive Factors. *Health communication, 29*(7), 656-668. doi: 10.1080/10410236.2012.763204

Hsu, C.-L., & Lin, J. C.-C. (2008). Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation. *Information & management, 45*(1), 65-74.

Hsu, C.-W. (2007). Staging on the Internet: Research on online photo album users in Taiwan with the spectacle/performance paradigm. *Cyberpsychology & Behavior, 10*(4), 596-600.

Hsu, C.-W., Wang, C.-C., & Tai, Y.-T. (2011). The closer the relationship, the more the interaction on Facebook? Investigating the case of Taiwan users. *Cyberpsychology, Behavior, and Social Networking, 14*(7-8), 473-476.

Hughes, D. J., Rowe, M., Batey, M., & Lee, A. (2012). A tale of two sites: Twitter vs. Facebook and the personality predictors of social media usage. *Computers in Human Behavior, 28*(2), 561-569. doi: http://dx.doi.org/10.1016/j.chb.2011.11.001

Hsu, C. L., & Lin, J. C. C. (2008). Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation. *Information & Management, 45*(1), 65-74.

Huang, E. (2008). Use and gratification in e-consumers. *Internet Research, 18*(4), 405-426.

Hung, S. Y., Durcikova, A., Lai, H. M., & Lin, W. M. (2011). The influence of intrinsic and extrinsic motivation on individuals' knowledge sharing behavior. *International journal of human-computer studies, 69*(6), 415-427.

Hunt, D., Atkin, D., & Krishnan, A. (2012). The influence of computer-mediated communication apprehension on motives for Facebook use. *Journal of Broadcasting & Electronic Media, 56*(2), 187-202.

Isen, A. M., & Levin, P. F. (1972). Effect of feeling good on helping: cookies and kindness. *Journal of personality and social psychology, 21*(3), 384-388.

James, M. L., Wotring, C. E., & Forrest, E. J. (1995). An exploratory study of the perceived benefits of electronic bulletin board use and their impact on other communication activities. *Journal of Broadcasting & Electronic Media, 39*(1), 30-50.

Jansen, B. J., Zhang, M., Sobel, K., & Chowdury, A. (2009a). *Micro-blogging as online word of mouth branding.* Paper presented at the Proceedings of the 27th international conference extended abstracts on Human factors in computing systems.

Jansen, B. J., Zhang, M., Sobel, K., & Chowdury, A. (2009b). Twitter power: Tweets as electronic word of mouth. *Journal of the American Society for Information Science and Technology, 60*(11), 2169-2188.

Joinson, A. N. (2008). *Looking at, looking up or keeping up with people?: motives and use of facebook.* Paper presented at the Proceedings of the SIGCHI conference on Human Factors in Computing Systems.

Jung, T., Youn, H., & McClung, S. (2007). Motivations and self-presentation strategies on Korean-based" Cyworld" weblog format personal homepages. *CyberPsychology & Behavior, 10*(1), 24-31.

Jung, Y., & Kang, H. (2010). User goals in social virtual worlds: A means-end chain approach. *Computers in Human Behavior, 26*(2), 218-225.

Kahlor, L. (2010). PRISM: a planned risk information seeking model. *Health communication, 25*(4), 345-356.

Kahlor, L., Dunwoody, S., Griffin, R. J., & Neuwirth, K. (2006). Seeking and processing information about impersonal risk. *Science Communication, 28*(2), 163-194.

Kahneman, D. (1973). *Attention and Effort*. Englewood Cliffs,NJ: Prentice-Hall.

Kaplan, A. M., & Haenlein, M. (2010). Users of the world, unite! The challenges and opportunities of Social Media. *Business horizons, 53*(1), 59-68.

Katz, E. (1959). Mass Communications Research and the Study of Popular Culture: An Editorial Note on a Possible Future for This Journal. *Studies in Public Communication, 2*, 1-6.

Katz, E., Blumler, J. G., & Gurevitch, M. (1973). Uses and gratifications research. *The Public Opinion Quarterly, 37*(4), 509-523.

Katz, E., Haas, H., & Gurevitch, M. (1973). On the use of the mass media for important things. *American Sociological Review*, 164-181.

Kaye, B. K. (1998). Uses and gratifications of the World Wide Web: From couch potato to Web potato. *Atlantic Journal of Communication, 6*(1), 21-40.

Kim, J.-N., & Grunig, J. E. (2011). Problem solving and communicative action: A situational theory of problem solving. *Journal of Communication, 61*(1), 120-149.

Kim, J.-N., Grunig, J. E., & Ni, L. (2010). Reconceptualizing the communicative action of publics: Acquisition, selection, and transmission of information in problematic situations. *International Journal of Strategic Communication, 4*(2), 126-154.

Kim, J.-N., & Krishna, A. (2014). Publics and Lay Informatics: A review of the Situational Theory of Problem Solving. *Communication Yearbook, 38*, 71-105.

Kim, J.-N., Shen, H., & Morgan, S. E. (2011). Information behaviors and problem chain recognition effect: Applying situational theory of problem solving in organ donation issues. *Health communication, 26*(2), 171-184.

King, W. D., Woolhandler, S. J., Brown, A. F., Jiang, L., Kevorkian, K., Himmelstein, D. U., & Bor, D. H. (2006). Brief report: Influenza vaccination and health care workers in the United States. *Journal of General Internal Medicine, 21*(2), 181-184.

Kolekofski, K. E., & Heminger, A. R. (2003). Beliefs and attitudes affecting intentions to share information in an organizational setting. *Information & Management, 40*(6), 521-532.

Kozinets, R. V., De Valck, K., Wojnicki, A. C., & Wilner, S. J. (2010). Networked narratives: understanding word-of-mouth marketing in online communities. *Journal of Marketing, 74*(2), 71-89.

Krämer, N. C., & Winter, S. (2008). Impression management 2.0: The relationship of self-esteem, extraversion, self-efficacy, and self-presentation within social networking sites. *Journal of Media Psychology: Theories, Methods, and Applications, 20*(3), 106-116.

Krugman, H. E. (1965). The impact of television advertising: Learning without involvement. *Public opinion quarterly, 29*(3), 349-356.

Krugman, H. E. (1966). The measurement of advertising involvement. *Public opinion quarterly, 30*(4), 583-596.

Ku, Y.-C., Chu, T.-H., & Tseng, C.-H. (2013). Gratifications for using CMC technologies: A comparison among SNS, IM, and e-mail. *Computers in Human Behavior, 29*(1), 226-234.

Laranjo, L., Arguel, A., Neves, A. L., Gallagher, A. M., Kaplan, R., Mortimer, N., . . . Lau, A. Y. (2014). The influence of social networking sites on health behavior change: a systematic review and meta-analysis. *Journal of the American Medical Informatics Association*, amiajnl-2014-002841.

LaRose, R., Lin, C. A., & Eastin, M. S. (2003). Unregulated Internet usage: Addiction, habit, or deficient self-regulation? *Media Psychology, 5*(3), 225-253.

Lazarsfeld, P. F., Berelson, B., & Gaudet, H. (1948). *Thepeople's choice*. New York: Columbia UniversityPress.

Lee, G., & Lee, W. J. (2009). Psychological reactance to online recommendation services. *Information & Management, 46*(8), 448-452.

Leung, L. (2001). College student motives for chatting on ICQ. *New Media & Society, 3*(4), 483-500.

Lin, C., Salwen, M. B., & Abdulla, R. A. (2005). Uses and gratifications of online and offline news: New wine in an old bottle. *Online news and the public* (pp. 221-236). Mahwah, NJ: Lawrance Erlbaum Associates.

Lin, C. A. (2002). Perceived gratifications of online media service use among potential users. *Telematics and Informatics, 19*(1), 3-19.

Lin, K.-Y., & Lu, H.-P. (2011). Why people use social networking sites: An empirical study integrating network externalities and motivation theory. *Computers in Human Behavior, 27*(3), 1152-1161. doi: http://dx.doi.org/10.1016/j.chb.2010.12.009

Lin, N., Cook, K. S., & Burt, R. S. (2001). Building a network theory of social capital. In N. Lin, K. Cook, & R. S. Burt (Eds.), *Social capital: Theory and research* (pp. 3-29). New York: Aldine De Gruyter.

Lochner, K., Kawachi, I., & Kennedy, B. P. (1999). Social capital: a guide to its measurement. *Health & place, 5*(4), 259-270.

Lisha, N. E., Grana, R., Sun, P., Rohrbach, L., Spruijt-Metz, D., Reifman, A., & Sussman, S. (2012). Evaluation of the Psychometric Properties of the Revised Inventory of the Dimensions of Emerging Adulthood (IDEA-R) in a Sample of Continuation High School Students. *Evaluation & the health professions, 37*(2), 156-177.

Liu-Thompkins, Y. (2012). Seeding viral content. *Journal of advertising research, 52*(4), 465-478.

Manago, A. M., Graham, M. B., Greenfield, P. M., & Salimkhan, G. (2008). Self-presentation and gender on MySpace. *Journal of Applied Developmental Psychology, 29*(6), 446-458.

Maslow, A. H. (1943). A theory of human motivation. *Psychological review, 50*(4), 370-396.

McAndrew, F. T., & Jeong, H. S. (2012). Who does what on Facebook? Age, sex, and relationship status as predictors of Facebook use. *Computers in Human Behavior, 28*(6), 2359-2365. doi: http://dx.doi.org/10.1016/j.chb.2012.07.007

Mehdizadeh, S. (2010). Self-presentation 2.0: Narcissism and self-esteem on Facebook. *Cyberpsychology, Behavior, and Social Networking, 13*(4), 357-364.

Michikyan, M., Dennis, J., & Subrahmanyam, K. (in press). Can you guess who I am? Real, ideal, and false self-presentation on Facebook among emerging adults. *Emerging Adulthood*, 2167696814532442.

Michikyan, M., Subrahmanyam, K., & Dennis, J. (2014). Can you tell who I am? Neuroticism, extraversion, and online self-presentation among young adults. *Computers in Human Behavior, 33*, 179-183.

Miranda, S. M., & Saunders, C. S. (2003). The social construction of meaning: An alternative perspective on information sharing. *Information Systems Research, 14*(1), 87-106.

Moorhead, S. A., Hazlett, D. E., Harrison, L., Carroll, J. K., Irwin, A., & Hoving, C. (2013). A new dimension of health care: systematic review of the uses, benefits, and limitations of social media for health communication. *Journal of Medical Internet Research, 15*(4), e85.

Mowen, J. C., Park, S., & Zablah, A. (2007). Toward a theory of motivation and personality with application to word-of-mouth communications. *Journal of Business Research, 60*(6), 590-596.

Nadkarni, A., & Hofmann, S. G. (2012). Why do people use Facebook? *Personality and Individual Differences, 52*(3), 243-249.

Neiger, B. L., Thackeray, R., Van Wagenen, S. A., Hanson, C. L., West, J. H., Barnes, M. D., & Fagen, M. C. (2012). Use of social media in health promotion purposes, key performance indicators, and evaluation metrics. *Health Promotion Practice, 13*(2), 159-164.

Newton, K. (1997). Social capital and democracy. *American behavioral scientist, 40*(5), 575-586.

Nguyen, A., Ferrier, E., Western, M., & McKay, S. (2005). Online news in Australia: patterns of use and gratification. *Australian Studies in Journalism*(15), 5-34.

Nurmi, J.-E. (2004). Socialization and self-development. *Handbook of adolescent psychology, 2*, 85-124.

Olaisen, J. (1990). Information versus information technology as a strategic resource: Areas of application of information and information technology in Norwegian banks and insurance companies. *International Journal of Information*

Management, 10(3), 192-214. doi: http://dx.doi.org/10.1016/0268-4012(90)90020-S

Ong, E. Y., Ang, R. P., Ho, J., Lim, J. C., Goh, D. H., Lee, C. S., & Chua, A. Y. (2011). Narcissism, extraversion and adolescents' self-presentation on Facebook. *Personality and Individual Differences, 50*(2), 180-185.

Padilla-Walker, L. M., Nelson, L. J., Carroll, J. S., & Jensen, A. C. (2010). More than a just a game: video game and internet use during emerging adulthood. *Journal of Youth and Adolescence, 39*(2), 103-113.

Palmgreen, P. (1984). Uses and gratifications: A theoretical perspective. *Communication Yearbook, 8*, 20-55.

Papacharissi, Z., & Mendelson, A. (2011). Toward a new(er) sociability: Users, gratifications and social capital on Facebook. In S. Papathanassopoulos (Ed.), *Media perspectives for the 21st century* (pp. 212-230). New York: Routledge.

Park, N., Kee, K. F., & Valenzuela, S. (2009). Being Immersed in Social Networking Environment: Facebook Groups, Uses and Gratifications, and Social Outcomes. *CyberPsychology & Behavior, 12*(6), 729-733. doi: 10.1089/cpb.2009.0003

Park, B. K., & Calamaro, C. (2013). A systematic review of social networking sites: innovative platforms for health research targeting adolescents and young adults. *Journal of Nursing Scholarship, 45*(3), 256-264.

Pempek, T. A., Yermolayeva, Y. A., & Calvert, S. L. (2009). College students' social networking experiences on Facebook. *Journal of Applied Developmental Psychology, 30*(3), 227-238. doi: http://dx.doi.org/10.1016/j.appdev.2008.12.010

Pew Research Internet Project. (2014). Social Networking Fact Sheet Retrieved September 24, 2014, from http://www.pewinternet.org/fact-sheets/social-networking-fact-sheet/

Phelps, J. E., Lewis, R., Mobilio, L., Perry, D., & Raman, N. (2004). Viral marketing or electronic word-of-mouth advertising: Examining consumer responses and motivations to pass along email. *Journal of advertising research, 44*(04), 333-348.

Pieters, R., Baumgartner, H., & Allen, D. (1995). A means-end chain approach to consumer goal structures. *International Journal of research in Marketing, 12*(3), 227-244.

Price, L. L., Feick, L. F., & Higie, R. A. (1987). Information sensitive consumers and market information. *Journal of Consumer Affairs, 21*(2), 328-341.

Quan-Haase, A., & Young, A. L. (2010). Uses and gratifications of social media: A comparison of Facebook and instant messaging. *Bulletin of Science, Technology & Society, 30*(5), 350-361.

Rafaeli, S., & Raban, D. R. (2005). Information sharing online: a research challenge. *International Journal of Knowledge and Learning, 1*(1), 62-79.

Ralph, L. J., Berglas, N. F., Schwartz, S. L., & Brindis, C. D. (2011). Finding teens in TheirSpace: using social networking sites to connect youth to sexual health services. *Sexuality research and social policy, 8*(1), 38-49.

Reifman, A., Colwell, M., & Arnett, J. J. (2007). Emerging Adulthood: Theory, Assessment and Application. *Journal of Youth Developpment, 2*(1).

Reynolds, T. J., & Gutman, J. (1988). Laddering theory, method, analysis, and interpretation. *Journal of advertising research, 28*(1), 11-31.

Reynolds, T. J., & Whitlark, D. B. (1995). Applying laddering data to communication strategy and advertising practice. *Journal of advertising research, 35*(4), 9-17.

Richards, A. S., & Banas, J. A. (2014). Inoculating Against Reactance to Persuasive Health Messages. *Health communication*(ahead-of-print), 1-10.

Rubin, A. (2002). The uses-and-gratifications perspective of media effects. In J. Bryant & D. Zillman (Eds.), *Media effects: Advances in theory and research* (2nd ed.). Mahwah, NJ: Eribaum.

Ruggiero, T. E. (2000). Uses and gratifications theory in the 21st century. *Mass Communication & Society, 3*(1), 3-37.

Salmela-Aro, K., Aunola, K., & Nurmi, J.-E. (2007). Personal Goals During Emerging Adulthood A 10-Year Follow Up. *Journal of Adolescent Research, 22*(6), 690-715.

Sangwan, S. (2005). *Virtual community success: A uses and gratifications perspective.* Paper presented at the System Sciences, 2005. HICSS'05. Proceedings of the 38th Annual Hawaii International Conference on.

Schau, H. J., & Gilly, M. C. (2003). We are what we post? Self-presentation in personal web space. *Journal of consumer research, 30*(3), 385-404.

Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: assessment and implications of generalized outcome expectancies. *Health psychology, 4*(3), 219-247.

Schutz, W. C. (1966). *FIRO: A three-dimensional theory of interpersonal behavior*. New York: Holt, Rinehart, & Winston.

Seidman, G. (2013). Self-presentation and belonging on Facebook: How personality influences social media use and motivations. *Personality and Individual Differences, 54*(3), 402-407. doi: http://dx.doi.org/10.1016/j.paid.2012.10.009

Shao, G. (2009). Understanding the appeal of user-generated media: a uses and gratification perspective. *Internet Research, 19*(1), 7-25. doi: doi:10.1108/10662240910927795

Sheldon, P. (2008a). The relationship between unwillingness-to-communicate and students' Facebook use. *Journal of Media Psychology: Theories, Methods, and Applications, 20*(2), 67-75.

Sheldon, P. (2008b). Student favorite: facebook and motives for its use. *Southwestern Mass Communication Journal, 23*(2), 39-53.

Sherif, M., & Hovland, C. I. (1961). Social judgment: Assimilation and contrast effects in communication and attitude change. New Haven, CT: Yale University Press.

Siibak, A. (2009). Constructing the Self through the Photo selection-Visual Impression Management on Social Networking Websites. *Cyberpsychology, 3*(1).

Sirsch, U., Dreher, E., Mayr, E., & Willinger, U. (2009). What does it take to be an adult in Austria? Views of adulthood in Austrian adolescents, emerging adults, and adults. *Journal of Adolescent Research, 24*, 475-492.

Smith, A. (2014, February 3, 2014). 6 new facts about Facebook Retrieved September 24, 2014, from http://www.pewresearch.org/fact-tank/2014/02/03/6-new-facts-about-facebook/

Smock, A. D., Ellison, N. B., Lampe, C., & Wohn, D. Y. (2011). Facebook as a toolkit: A uses and gratification approach to unbundling feature use. *Computers in Human Behavior, 27*(6), 2322-2329.

Sniehotta, F. F., Presseau, J., & Araújo-Soares, V. (2014). Time to retire the theory of planned behaviour. *Health Psychology Review, 8*(1), 1-7.

Stafford, T. F., Stafford, M. R., & Schkade, L. L. (2004). Determining uses and gratifications for the Internet. *Decision Sciences, 35*(2), 259-288.

Steinel, W., Utz, S., & Koning, L. (2010). The good, the bad and the ugly thing to do when sharing information: Revealing, concealing and lying depend on social

motivation, distribution and importance of information. *Organizational behavior and human decision processes, 113*(2), 85-96.

Steinfield, C., Ellison, N. B., & Lampe, C. (2008). Social capital, self-esteem, and use of online social network sites: A longitudinal analysis. *Journal of Applied Developmental Psychology, 29*(6), 434-445.

Subrahmanyam, K., & Greenfield, P. (2008). Online communication and adolescent relationships. *The Future of Children, 18,* 119-146.

Subrahmanyam, K., Reich, S. M., Waechter, N., & Espinoza, G. (2008). Online and offline social networks: Use of social networking sites by emerging adults. *Journal of Applied Developmental Psychology, 29*(6), 420-433.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. *The social psychology of intergroup relations, 33*(47), 74.

Talja, S. (2002). Information sharing in academic communities: types and levels of collaboration in information seeking and use. *New Review of Information Behavior Research, 3*(1), 143-159.

Talja, S., & Hansen, P. (2006). Information sharing. *New directions in human information behavior,* 113-134.

Tanner, J. L. (2006). Recentering during emerging adulthood: A critical turning point in life span human development. In J. J. Arnett & J. L. Tanner (Eds.), *Emerging adulthood in America: Coming of age in the 21st century* (pp. 21–55). Washington, DC: American Psychological Association.

Tanner, J. L., & Arnett, J. J. (2009). The emergence of 'emerging adulthood.'. In A. Furlong (Ed.), *Handbook of youth and young adulthood: new perspectives and agendas*. New York: Routledge, New York.

Terry, M. (2009). Twittering healthcare: social media and medicine. *Telemedicine and e-Health, 15*(6), 507-510.

Terry, D. J., & Hogg, M. A. (1996). Group norms and the attitude-behavior relationship: A role for group identification. *Personality and Social Psychology Bulletin, 22*(8), 776-793.

Thackeray, R., Crookston, B. T., & West, J. H. (2013). Correlates of health-related social media use among adults. *Journal of Medical Internet Research, 15*(1), e21.

Thackeray, R., Neiger, B. L., Smith, A. K., & Van Wagenen, S. B. (2012). Adoption and use of social media among public health departments. *BMC Public Health, 12*(1), 242.

Tosun, L. P. (2012). Motives for Facebook use and expressing "true self" on the Internet. *Computers in Human Behavior, 28*(4), 1510-1517. doi: http://dx.doi.org/10.1016/j.chb.2012.03.018

Trusov, M., Bucklin, R. E., & Pauwels, K. (2009). Effects of word-of-mouth versus traditional marketing: findings from an internet social networking site. *Journal of Marketing, 73*(5), 90-102.

Urista, M. A., Dong, Q., & Day, K. D. (2009). Explaining why young adults use MySpace and Facebook through uses and gratifications theory. *Human Communication, 12*(2), 215-229.

Utz, S., Tanis, M., & Vermeulen, I. (2012). It is all about being popular: The effects of need for popularity on social network site use. *Cyberpsychology, Behavior, and Social Networking, 15*(1), 37-42.

Vance, K., Howe, W., & Dellavalle, R. P. (2009). Social internet sites as a source of public health information. *Dermatologic clinics, 27*(2), 133-136.

Viswanath, K., Ramanadhan, S., & Kontos, E. Z. (2007). Mass media. In S. Galea (Ed.), *Macrosocial determinants of population health* (pp. 275-294). New York: Springer.

Walsh, G., Gwinner, K. P., & Swanson, S. R. (2004). What makes mavens tick? Exploring the motives of market mavens' initiation of information diffusion. *Journal of Consumer Marketing, 21*(2), 109-122.

Walsh, G., Mitchell, V., Wiedmann, K., Frenzel, T., & Duvenhorst, C. (2002). German eMavens on Internet music sites. *Proceedings: Enhancing knowledge development in marketing, AMA*, 435-436.

Walther, J. B. (1996). Computer-mediated communication impersonal, interpersonal, and hyperpersonal interaction. *Communication Research, 23*(1), 3-43.

Wang, Z., & Tchernev, J. M. (2012). The "myth" of media multitasking: Reciprocal dynamics of media multitasking, personal needs, and gratifications. *Journal of Communication, 62*(3), 493-513.

Wang, Z., Tchernev, J. M., & Solloway, T. (2012). A dynamic longitudinal examination of social media use, needs, and gratifications among college students. *Computers in Human Behavior, 28*(5), 1829-1839.

Westbrook, R. A. (1987). Product/consumption-based affective responses and postpurchase processes. *Journal of Marketing Research*, 258-270.

Whiting, A., & Williams, D. (2013). Why people use social media: A uses and gratifications approach. *Qualitative Market Research: An International Journal, 16*(4), 362-369.

Wiemann, J. M., & Knapp, M. L. (1975). Turn-taking in conversations. *Journal of Communication, 25*(2), 75-92.

Wiedmann, K.-P., Walsh, G., & Mitchell, V.-W. (2001). The Mannmaven: an agent for diffusing market information. *Journal of Marketing Communications, 7*(4), 195-212.

Williams, D. (2006). On and off the'Net: Scales for social capital in an online era. *Journal of Computer-Mediated Communication, 11*(2), 593-628.

Williams, T. G., & Slama, M. E. (1995). Market mavens' purchase decision evaluative criteria: implications for brand and store promotion efforts. *Journal of Consumer Marketing, 12*(3), 4-21.

Wirtz, J., & Chew, P. (2002). The effects of incentives, deal proneness, satisfaction and tie strength on word-of-mouth behaviour. *International Journal of Service Industry Management, 13*(2), 141-162.

Woolcock, M. (1998). Social capital and economic development: Toward a theoretical synthesis and policy framework. *Theory and society, 27*(2), 151-208.

Yamagishi, T., & Mifune, N. (2008). Does shared group membership promote altruism? Fear, greed, and reputation. *Rationality and Society, 20*(1), 5-30.

Yang, Z. J., Aloe, A. M., & Feeley, T. H. (2014). Risk Information Seeking and Processing Model: A Meta-Analysis. *Journal of Communication, 64*(1), 20-41. doi: 10.1111/jcom.12071

Yang, Z. J., Kahlor, L., & Griffin, D. (2014). I share, therefore I am: A U.S. - China comparison of college students' motivations to share information about climate change. *Human Communication Research, 40*(1), 112-135. doi: DOI: 10.1111/hcre.12018

Zaichkowsky, J. L. (1985). Measuring the involvement construct. *Journal of consumer research*, 341-352.

Zanoli, R., & Naspetti, S. (2002). Consumer motivations in the purchase of organic food. *British Food Journal, 104*(8), 643-653. doi: doi:10.1108/00070700210425930

Zhao, S., Grasmuck, S., & Martin, J. (2008). Identity construction on Facebook: Digital empowerment in anchored relationships. *Computers in Human Behavior, 24*(5), 1816-1836